British Medical Journal

CONTENTS

MAY 23, 1931

ORIGINAL ARTICLES

Angina Pectoris. By JOHN COWAN, M.D. (Illustrated) 879

The Development of the Science of Nutrition in Relation to Disease. By J. B. ORR, M.D., D.Sc. 883

Three Cases of Psittacosis with Two Deaths. By H. R. FISHER, M.B., Ch.B., and R. J. HELSBY, L.R.C.P.&S. With **Summary of Necropsy,** by DOROTHY S. RUSSELL, M.D.; and **Note on the Bacteriological Findings,** by S. P. BEDSON, M.D., M.Sc. ... 887

A Case of Cerebellar Abscess. By COURTENAY YORKE, M.D., F.R.C.S. ... 891

The Technique of Surgical Diathermy. By ALBERT EIDINOW, M.B., B.S. (Illustrated) 892

MEMORANDA

Suicidal Cut Throat: Recovery. By M. W. WARREN, M.R.C.S., L.R.C.P. ... 894

Treatment of Pernicious Anaemia. By H. C. KEATES, M.D., B.S. 894

REPORTS OF SOCIETIES

ROYAL SOCIETY OF MEDICINE:
The Obstetrical Problem of Contracted Pelvis 895
Injection Treatment of Piles 897

HARVEIAN SOCIETY: Calcium Therapy 898

REVIEWS

A System of Bacteriology 899
The Control of Malaria 900
Social Progress and Health 900
Surgery for the General Practitioner .. 901
A History of the Ambulance Movement 901
Notes on Books 902

MEDICO-LEGAL

Ether-Oxygen Anaesthetic Fatality 915
Alleged Fraudulent Misrepresentation by Medical Adviser 915

OBITUARY

T. R. Glynn, M.D., F.R.C.P. (With Portrait) 917

LEADING ARTICLES

THE PROPRIETARY MEDICINES BILL 903
HUGHLINGS JACKSON 904

THE WEEK

Schools of Hygiene 905
Traffic in Narcotic Drugs 905
Glass 906
British Science Guild's Programme 906
Cats and Human Disease 907
Post-graduate Courses in Tuberculosis 907
Welfare of the Blind 907

GENERAL ARTICLES AND NEWS

Early Men and Apes. By Professor G. ELLIOT SMITH, M.D., F.R.S. 908
Hughlings Jackson Memorial 908
SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN 909
PREPARATIONS AND APPLIANCES. (Illustrated) 902
MEDICAL NOTES IN PARLIAMENT:
Lotteries for Hospitals 916
Deaths from Cancer 916
Milk 916
MEDICAL NEWS 919

LOCAL NEWS

IRELAND—
University of Dublin 910
National Health Insurance (Irish Free State) 910
Memorial to Dr. Arthur Dobbs 910
Armagh Mental Hospital 910
ENGLAND AND WALES—
Pay-Bed Section, Royal Victoria Infirmary, Newcastle 910
The Middlesex Hospital 911
Mental Deficiency in London 911
West London Hospital and the "Class Between" 911

UNIVERSITIES AND COLLEGES

University of London 918
Royal College of Surgeons of England ... 918
Royal College of Physicians of London 918
Royal College of Surgeons of Edinburgh 918

CORRESPONDENCE

The New Zealand Earthquake. By L. A. Parry, M.D., F.R.C.S. 912
Obstetric Shock. By F. G. Crookshank, M.D., F.R.C.P. 912
Detached Retina. By J. Cole Marshall, M.D., F.R.C.S. 912
Fractures of the Long Bones. By T. P. McMurray, M.Ch., F.R.C.S.Ed. 912
Fractures of the Neck of the Femur. By J. E. T. Shirlaw, M.B. 913
Coronary Thrombosis and Myocardial Infarction, with Glycosuria. By Griffith Evans, D.M., F.R.C.S. 913
A Barber-Surgeon's Instrument Case. By Sir D'Arcy Power, F.R.C.S. 914
Spinal Anaesthesia. By Basil Hughes, F.R.C.S. 914
Schistosome Worms and Schistosome Monsters. By R. L. Sheppard 914
Acidosis and Seborrhoea. By A. Arnold Osman, M.R.C.P. 914
Cancer and Race. By N. Pines, M.B. ... 914
Immunization Against Vaccinia. By G. M. Findlay, M.D., D.Sc., and E. Hindle, Sc.D. 914
Diet and the Teeth. By Mrs. Mellanby 914

LETTERS AND ANSWERS

Income Tax 920
Ulcerative Colitis 920
Pregnancy with Intact Hymen 920
Clinical Thermometers 920
Visit of Scientists to Russia 920
Medical Golf 920

VACANCIES 920

(*See also page* 207 *of* SUPPLEMENT)

The SUPPLEMENT contains:

State Insurance in Relation to Health. Address by Dr. H. B. BRACKENBURY.
Proprietary Medicines Bill.
NOTICES OF MOTION FOR THE ANNUAL REPRESENTATIVE MEETING.
MEDICAL WOMEN'S FEDERATION.
CORRESPONDENCE.
Association Notices; Vacancies and Appointments; Diary.

AN EPITOME OF CURRENT MEDICAL LITERATURE will be found at the end of the JOURNAL

THE LONDON & COUNTIES MEDICAL PROTECTION SOCIETY, Ltd.

VICTORY HOUSE, LEICESTER SQUARE, LONDON, W.C.2.

President: Sir JOHN ROSE BRADFORD, Bart., K.C.M.G., C.B., C.B.E., M.D., F.R.C.P., F.R.S.

OBJECTS.—To protect, support, and safeguard the characters and interests of legally qualified Medical and Dental Practitioners; to advise and assist Members of the Society in matters affecting their professional characters and interests. UNLIMITED INDEMNITY is provided for Members (subject to the Articles of Association) against the costs of actions undertaken for them by the Society, and against adverse costs and damages awarded against them in such actions.

SUBSCRIPTION £1 per annum. ENTRANCE FEE 10/-. Telephone: GERRARD 4814.

Those who join within one year of Registration are exempt from Entrance Fee.

INDEX TO ADVERTISEMENTS.

Advertisements are classified so far as date of receipt and printing conditions make possible. Advertisements of the following classes will for the most part be found on the pages indicated.

PUBLISHERS.

Churchill, J. & A.
Books on the Eye ... 3
Books on Pathology, etc ... 3
Eden & Holland's Midwifery ... 3
Hale-White's Materia Medica ... 3
Jameson & Parkinson— Synopsis of Hygiene ... 3
Koby's Slit Lamp Microscopy ... 3
Lawrence, R. D.—Diabetic Life ... 3
Neame & Williamson-Noble— Handbook of Ophthalmology ... 3
Sequeira's Diseases of the Skin ... 3
Ward's Favourite Prescriptions ... 3
Yorke & Maplestone—Nematode Parasites of Vertebrates ... 3

Lewis, H. K. & Co. Ltd.
Jelliffe & White— Diseases of the Nervous System 4
Jones, D. W. C.—Elementary Med. 4
Mackenzie, C.—Action of Muscles 4
Tilney & Riley— Central Nervous System ... 4

Livingstone, E. & S.
Morley, J.—Abdominal Pain ... 4

Simpkin Marshall Ltd.
Taplin, A. B.— Hypnotic Suggestion, etc. ... 4
Hypnotism, etc. ... 4

Wright & Sons, Ltd.
Hutchison, R.—Medical Treatment 4
Medical Annual, 1931 ... 4

Hopewell-Ash, E. L.— Medical Hypnosis & Suggestion ... 4

ASSURANCE COMPANIES—
London Med. Protection Society ... 1
Medical Insurance Agency Cover i.i, 53

BOOTMAKERS, &c.—
Holland & Son—Natureform Shoes 34

BRASS NAME PLATES, &c.—
Herd, S. J. & A.—Name Plates ... 32
Lewis & Co. Ltd.—Name Plates ... 4
Osborne, F. & Co.—Name Plates ... 4

DEBT COLLECTION—
Brit. Med. Protection Society ... 32

SURGICAL APPLIANCES—
Bell & Croyden— Sterilized Dressings ... 35
Dent's 'Ardente' Stethoscope ... 34
Hawksley & Sons, Ltd.— Sphygmomanometers ... 34
Stethoscopes ... 34
Hilliard's New Absorbent Bags ... 4
Medical Supply Association, Ltd.— Portable Traction Apparatus ... 8
Medical Surgical Sundries, Ltd.— Esseff Inhaling Apparatus ... 52
Salt's Surgical Service ... 9
Short & Mason— Tycos Sphygmomanometer ... 4

FOOD PREPARATIONS—
Bantam Products Ltd.—Coffee ... 10
Battle Creek Food Co.— Lacto-Dextrin & Psylla ... 14
Benger's Food ... 25
Cow & Gate Ltd.—Milk Food ... 25
Glaxo Laboratories— Sunshine Glaxo ... 31
Harden Bros. & Lindsay, Ltd.— Doctor's China Tea ... 20
Keen, Robinson & Co. Ltd.— 'Patent' Barley ... 10
Nestlé & Anglo-Swiss Con. Milk Co. Lactogen ... 28
Soya Flour Manufacturing Co.— Soyolk ... 13
Valentine's Meat-Juice ... 11

HOSPITAL, &c., FURNITURE—
Furniture, &c., Depositories, Ltd.— Second-hand Furniture ... 35
Ward, Ltd.—Invalid Chairs ... 34

HOUSE AGENTS—
Bedford & Co. ... 52
Elliott, Son & Boyton ... 52

MOTOR CARS, TYRES, &c.—
Armstrong Siddeley Motor Cars ... 32
Second-hand Motors for Sale ... 52

CHEMISTS, &c.—
Allen & Hanburys Ltd.— Castor Oil ... 10
Insulin 'A.B.' ... 16
'Lixen' ... 29
Stomach Tissue ... 29
Alliance Drug & Chemical Co.— Price List ... 35
Bio-Chemical Laboratories— Disulphamin ... 17
Boots Products ... 15,16
British Drug Houses Ltd.— Aether Puriss. B.D.H. ... 21
Caprokol ... 18
Insulin 'A.B.' ... 16
Burroughs Wellcome & Co.— Preparations ... Cover iv
Cranbux Ltd.—Odol ... 21
Cuxson, Gerrard & Co., Ltd.— Regulol ... 22
Dunneford & Co. Ltd.—Magnesia ... 12
Duncan, Flockhart & Co.— Haemamol ... 12
Evans Sons Lescher & Webb Ltd.— Arocan ... 27
Fellows' Compound Syrup of Hypophosphites—'Fellows' ... 11
Hewlett & Son, Ltd.—'Hepatagen' ... 18
Kaylene Ltd.—Kaylene-ol ... 20
Kerol Ltd.—Capsules ... 24
Laboratoires Lobica—Lactobyl ... 19
Marshall's Lysol ... 17
Martindale, W.—'Sternules' ... 10
May & Baker, Ltd.—'Varicune' ... 15
Newbery & Sons, Ltd.— Agarol ... Cover ii
Alka-Zane ... 14
Oppenheimer Products ... 13
Parke, Davis & Co.—Emplets ... Cover i
Saccharin Corporation Ltd.— Novocain & Glaucosan ... 22
Sandoz Chemical Works— Calcium-Sandoz ... 30
Sharp & Dohme Ltd.—Caprokol ... 18
Staniform Ltd.—Staniform ... 24
Wander, A., Ltd.—Alasil & Alocol ... 23
Wright, Layman & Umney, Ltd.— Coal Tar Preparations ... 19

PRINTING & STATIONERY—
Anderson & Son—Account Forms 32
Carlyle, G.—Duplicate Books ... 4
Hamiltons—N.H. Filing Cabinets ... 32
Taylor's Typewriters ... 34

TAILORING & UNDERCLOTHING—
Gamages—Waterproofs ... 33
Hall, H.—Medical Service Dress ... 52
Regent Dress Co.—Tailors ... 32
The Irish Linen Mesh Co. Ltd.— Empire Linen Mesh Underwear. 32

TOBACCO & CIGARETTES—
Coen, L. Ltd.—Cigarettes ... 35
Player's Navy Cut ... 33

TRANSLATIONS, TYPEWRITING—
Radford, B.—Typewriting, &c. ... 51

VACCINES & CULTURE MEDIA—
Laboratories of Path. & Pub. Hlth. 34
Willows, Francis, Butler & Thompson, Ltd.- Pollant'n ... 10

X-RAY & ELECTRO-MEDICAL APPARATUS—
Gen. Radio. & Surg. Appar. Co— Diathermy Apparatus ... 8
Victor X-ray Corporation Ltd.— X-Ray Apparatus ... 7

BATHS, SPAS, &c.—
Harrogate Royal Baths ... 40
La Lechere-Les-Bains, France ... 41
Mont-Dore ... 41

HYDROS & PRIVATE HOSPITALS—
Bournemouth Hydro ... 41
Peebles Hydro ... 41
Ruthin Castle, North Wales ... 37
Smedley's Hydro, Matlock ... 38

INEBRIETY—
Bay Mount, Paignton ... 38
Caldecote Hall, Nuneaton ... 38
Dalrymple House, Rickmansworth 38
'Old Hill House,' Chislehurst ... 38

CONTRACT PRACTICE & OTHER APPOINTMENTS—
IMPORTANT NOTICE—RE APPOINTMENTS ... 49

HOSPITAL, &c., VACANCIES—
Acton Hospital, W.3 ... 47
Beckenham, Bethlem Royal Hosp. 48
Berkshire Royal Hospital ... 46
Birmingham General Hospital ... 43
Blackburn County Borough ... 52
Blackburn Royal Infirmary ... 47
Blackpool, Victoria Hospital ... 46
Bolton Infirmary & Dispensary ... 44
Brighton, New Sussex Hospital ... 44
Brighton, Royal Sussex Co. Hosp ... 49
Bristol, Cossham Memorial Hosp. ... 45
Bury County Borough ... 48
Cardiff City ... 45
Cardiff Royal Infirmary ... 47
Carlisle City ... 45
Cen. Lond. Throat & Nose Hosp ... 47
Chelsea Hosp. for Women, S.W.3 ... 49
Chesterfield & N. Derbys. Roy. Hos. 47
City of Lond. Hos. for Dis. of Heart 46
City of London Maternity Hospital 48
Coventry & Warwickshire Hospital 43
Derbyshire County Council ... 42
Derbys. Hospital for Sick Children 46
Doncaster Royal Infirmary ... 46
Dorset County Hospital ... 43
Dumfries & Galloway Royal Infirm. 44
Durham County Hospital ... 52
East Ham Memorial Hospital ... 44
Edinburgh Elsie Inglis Mem. Hos. 44
Edinburgh Hospital for Women ... 45
Elizabeth Garrett Anderson Hosp. 41
Ethel Hedley Orthopaedic Hospital 47
Evelina Hosp. for Children, S.E.1 ... 44
General Lying-in-Hospital, S.E.1 ... 45
Gloucershire Royal Infirmary ... 46
Golden Sq. Throat & Nose Hosp ... 52
Grosvenor Hospital for Women ... 44
Hertfordshire County Council ... 45
Hospital for Sick Children, W.C.1 ... 45
Hove, Lady Chichester Hospital ... 41
Huddersfield Royal Infirmary ... 45
Hull Royal Infirmary ... 49
Hull, Victoria Hosp. for Children ... 52
Ilford, King George Hospital ... 48
Inverness, Royal Northern Infirm ... 48
King's Lynn, W. Norfolk Gen. Hos. 47
Kingston-upon Hull City & County 45
Lancaster County Mental Hospital 45
Lancaster Royal Infirmary ... 48
Leeds Hospital for Women ... 49
Leicester City Mental Hospital ... 46
Liverpool and Samaritan Hospital 52
London County Council ... 45
London Female Lock Hospital ... 44
London Temperance Hospital ... 43,52
Macclesfield, Cheshire Mental Hos. 46
Manchester Babies' Hospital ... 44
Manchester City ... 43,48
Manchester Ear Hospital ... 52
Manchester Royal Children's Hosp. 47
Manchester Royal Eye Hospital ... 52
Manchester Royal Infirmary ... 44
Middlesborough, N. Ormesby Hosp. 42
Ministry of Pensions ... 45
Nat. Hosp. for Nervous Dis., W.C.1 ... 46
Newcastle, Hosp. for Sick Children 44
Newport, Royal Gwent Hospital ... 46
Nottingham General Hospital ... 48
Oldham Royal Infirmary ... 46
Oxford, Radcliffe Infirmary ... 47
Paisley, Royal Alexandra Infirmary 45
Plymouth, South Devon Hospital ... 49
Poole, Cornelia & E. Dorset Hosp. 45
Queen's Hospital for Children, E.2 49
Queen Mary's Hospital, E.15 ... 44
Rotherham Hospital ... 45
Royal Eye Hospital, S.E.1 ... 48
Royal Free Hospital, W.C.1 ... 49
Royal London Ophthalmic Hosp. ... 47
Royal Waterloo Hosp. for Women ... 52
St. Mary's Hospital, W.2 ... 48
Salford Royal Hospital ... 47
Samaritan Free Hosp. for Women 46
Seamen's Hospital Society ... 47
Sheffield Children's Hospital ... 46
Sheffield Royal Infirmary ... 44
Stoke, N. Staffs Royal Infirmary ... 47
Sunderland Children's Hospital ... 47
Sunderland Royal Infirmary ... 44
Surrey County Council ... 43
Truro, Royal Cornwall Infirmary ... 48
Walsall County Borough ... 45
West Bromwich County Borough ... 45
West Ham County Borough ... 43
West London Hospital, W.6 ... 48
Westminster Hospital Annexe ... 45
Windsor, King Edward VII Hosp ... 46
Woking Victoria Hospital ... 47
Wolverhampton Royal Hospital ... 48
Worcester General Infirmary ... 45
Wrexham War Memorial Hospital 43
York County Hospital ... 48

HOTELS & HOTEL RESORTS—
Grand Hotel Harrogate ... 40
Hotel Majestic, Harrogate ... 40

HOMES & ASYLUMS—
Bailbrook House, Bath ... 38
Barnwood House, Gloucester ... 36
Bethlem Royal Hospital, Kent ... 36
Bishopstone House, Bedford ... 37
Boreatton Park, Salop ... 38
Camberwell House, S.E.5 ... 37
Cheadle Royal, Cheshire ... 36
Chiswick House, Pinner ... 36
City of London Mental Hospital ... 36
Clarence Lodge, Clapham Park ... 38
Coppice, Nottingham ... 36
Court Hall, Kenton, Exeter ... 36
Dartmoor Convalescent Home ... 41
Gilgal Hospital, Perth ... 38
Grange, near Rotherham ... 36
Grove House, All Stretton ... 41
Haydock Lodge, Lancashire ... 36
Highfield Hall, St. Albans ... 36
Ladbroke House, Southam ... 38
Lawn, Lincoln ... 36
Littleton Hall, Brentwood, Essex ... 36
Moat House, Tamworth, Staffs ... 38
Northumberland House, N.4 ... 37
Old Manor, Salisbury ... 37
Peckham House, S.E.15 ... 37
Resident Patients ... 41
St. Andrew's Hosp. Northampton ... 36
Shaftesbury House, Liverpool ... 36
Springfield House, near Bedford ... 38
Stanboroughs, Watford, Herts ... 37
Stonycrest Nursing Home ... 36
Stretton House, Shropshire ... 36
Tykeford Abbey, Newport Pagnell ... 6
West Haven, Bournemouth ... 36
Woodlands Park, Great Missenden 38
Wye House, Buxton ... 38

SANATORIA—
Brompton & Frimley Sanatorium ... 6
Cotswold Sanatorium ... 41
East Anglian Sanatorium ... 39
Grampian Sanatorium ... 38
Montana Hall, Switzerland ... 41
Mundesley Sanatorium ... 36
Pendyffryn Hall Sanatorium ... 38
Tor-na-Dee Sanatorium ... 38
Vale of Clwyd Sanatorium ... 38

SCHOOLS, &c.—
Colthurst House School, Warford ... 38
Taunton School, Taunton ... 42

MEDICAL SCHOOLS, &c.—
Brit. Homoeopathic Association ... 43
City of London Maternity Hospital 42
Liverpool School of Trop. Medicine 41
Manchester, Victoria University ... 41
N.-E. London Post-Grad. College ... 42
Salvation Army, Mothers' Hospital 41
West London Hospital ... 42

TUTORS & LECTURERS—
Exams.—Med. Corresp. College ... 43
F.R.C.S. Edin. Classes—H. C. Orrin 41
F.R.C.S. Ed. Classes—C. Whittaker 41
Fellowship of Medicine ... 42
Manchester Tutorial College ... 41
St. Mary's Hospital ... 42
Stammering—Miss E. Behnke ... 40
University Exam. Postal Institution 42

TRANSFER AGENTS—
Bovril Medical Agency, Ltd ... 38
British Medical Bureau ... 55,56,57
Lee & Martin, Ltd. ... 54
Manchester Medical & Schol. Assoc. 52
Med. Practitioners' Union Agency 53
Needes, H. ... 54
Peacock & Hadley, Ltd. ... 54
Sumner & Co., Ltd. ... 53
The Medical Agency ... 50,54
Turner, P., Ltd ... 50,53
Western Medical Agency, Bristol ... 53

ASSISTANTS, PRACTICES, &c.—
Assistancies Wanted and Vacant ... 50
Dispensers, Medical Posts, &c. ... 50,51
Locums Wanted and Vacant ... 50
Partnerships Wanted and Vacant ... 50
Practices Wanted and Vacant ... 50

NURSING INSTITUTES—
Cavendish Nurses ... 51
Nurses' Association ... 51

MISCELLANEOUS—
B.M.A. Announcements ... 5
Consulting Rooms, &c., to Let ... 52
Frigidaire Ltd.—Refrigeration ... 52
Income Tax Consultant—Hardy ... 52
Miscellaneous Sales &c. ... 52

It must be understood that the acceptance by the British Medical Association of an Advertisement does not imply a recommendation, and that no responsibility is accepted with regard to the accuracy of the statements therein contained.

The Issue of the BRITISH MEDICAL JOURNAL is this week 39,000 copies.

Observations
ON
ANGINA PECTORIS

BY
JOHN COWAN, M.D.
CONSULTING PHYSICIAN, GLASGOW ROYAL INFIRMARY

Angina pectoris is not a specific disease of the heart, but merely a single symptom of varied origin. If there is anything certain about it, it is its uncertainty. The initial seizure may prove fatal, or recurring attacks may continue indefinitely without gravely interfering with the business of life ; but sooner or later it causes death. The striking feature of most diseases of the heart, even mortal disease, is the absence of pain. Anguish may be great from shortness of breath, a feeling of suffocation or consciousness of the heart beat, but actual pain is rare. In angina pain is the dominating symptom—" a suffering as sharp as any that can be conceived in the nature of pain "—and often accompanied by something beyond the nature of pain, a sense of impending death. The pain is as a rule related to the chest ; it comes suddenly and goes suddenly. This may be the whole feature of an attack.

NATURE AND DISTRIBUTION OF THE PAIN

Angina varies greatly in its severity in different patients. Slight forms are common, the grave ones relatively rare. In the milder degrees it is only a slight uneasiness about the chest, with no particular localization or characteristics. There may be sensations of numbness, deadness, oppression, constriction, or tightness. It has been compared to a constricting band, or the action of pincers on the chest, and is usually described as dull. Whatever its character, in severe cases the agony may be exquisite.

The site of the pain is generally behind the centre of the sternum ; but it may be referred to one side of the chest, usually the left. The pain most commonly radiates into the left shoulder and down the ulnar border of the arm as far as the elbow or fingers ; less commonly into both arms ; and rarely, into the right arm alone. It may pass upwards into the neck or backwards between the shoulder-blades. In exceptional cases it is referred to the epigastrium or the xiphoid cartilage, and consequently ascribed by the patient to some gastric disorder. For a short time after the attacks the affected arm may be weak ; it may be so tender that blood pressure examinations are impossible ; or it may be insensitive, though this is rare. Attacks of herpes in the painful areas, atrophy of muscles, and vasomotor phenomena such as pallor or cyanosis have been recorded. As a rule the character and the distribution of the pain in successive attacks remain constant.

Distribution of the Pain

	Cases
Substernal	95
Substernal radiating into the left arm	36
Substernal radiating into the right arm	2
Substernal radiating into both arms	24
Substernal radiating into the neck	19
Substernal radiating into the back	8
Chiefly epigastric	11
Chiefly about the shoulder	5
	200

Coinciding with the pain there is, not infrequently, a feeling of impending death, which may be more overwhelming than the pain itself. This angor animi, as Ryle[1] points out, is not a fear of death, but a sense of impending dissolution, often accompanied by a sensation of constriction of the chest and the feeling that any movement, thoracic or systemic, would prove fatal. Usually associated with pain, it may, however, occur independently—the angina sine dolore of Gairdner. In one attack which we witnessed this angor animi was the prominent symptom, the patient being quite definite that he did not suffer pain. He died three years later from an infarct of the heart. In the typical attack the patient stops and holds on to some support, unable to speak, breathe, or move from the intensity of his distress ; his face pale and covered with sweat, or unaltered save for the expression of his agony. The initial attack generally follows physical exertion. Several of our patients suffered for the first time when hurrying to catch a train, walking uphill or against a strong wind, or lifting an unusual weight. But it may ensue on ordinary exertion, particularly shortly after a meal. Emotional disturbance—joy, fear, excitement, fits of temper (as in John Hunter's case)—may also be the exciting cause. Cessation of the exertion is rapidly followed by cessation of the pain, but as time passes slight degrees of exertion or disturbance may bring on an attack.

This angina of exertion must be clearly distinguished from comparable attacks occurring during rest, the angina of decubitus (infarct of the heart). These may arise when the patient is quietly reading ; or he may be roused from sleep by the pain. In most instances they succeed attacks of the angina of exertion, but occasionally they come without warning. In a series of 84 cases of infarct this unforeseen catastrophe occurred in 7 cases.

Duration of Attack

The duration of attacks varies. In the angina of exertion the onset and termination are usually abrupt, the seizure lasting from a few seconds to a minute or two. It rarely lasts for more than ten minutes, but we have seen one persist for forty-five. In the angina of decubitus the attacks may recur in quick succession for several hours (status anginosus) or may last for a day or more, notwithstanding liberal doses of opium. The termination of attacks is sometimes accompanied by the passage of large quantities of urine, or eructations ; but this is unusual. Following attacks the patient as a rule feels exhausted for a time, and then quite well save for the remembrance of his agony.

Such are the usual symptoms in the initial attacks. Eventually death occurs—instantaneously, after a few minutes of pain, or following a prolonged paroxysm. Rarely, a paroxysm is followed by cardiac failure of the congestive type, unaccompanied, as a rule, by pain.

ETIOLOGY

Angina is more common in men than in women, occurring most frequently in the fifth and sixth decades. Our youngest patient was aged 23 ; but cases have been recorded at the age of 7 (Stewart) and 12 (Allbutt, Heberden, Wild). It is most common among brain workers, as contrasted with the labouring classes, and in occupations which entail nervous strain. Only 13 of our 200 cases were of the hospital class.

We have failed to trace any special relationship between angina and the infections. Apart from the exanthemata, rheumatic fever was the most common antecedent in this series, but its incidence was small. The association of angina and syphilis is, however, closer. In this series 17 patients were known to have suffered from syphilis and 4 from gonorrhoea, the incidence of venereal disease thus being 10.5 per cent. Only one of these patients was in hospital, where the incidence of syphilis in our wards, as shown by routine Wassermann tests, was 8.6 per cent. in the men and 7.2 per cent. in the women. But several writers have found a higher incidence of syphilis in angina, Huchard reporting its presence in 33 out of 130 cases of angina, and Josué in 30 out of 100 cases.

Syphilis is the common cause of angina before 40 years of age, and is generally associated with aortic valvular disease, the valves and the orifices of the coronary arteries both being affected. In this series the three men aged 30 were all syphilitic. After 40 it is less important. One must remember, however, that angina may occur in rheumatic aortic disease, which was the cause in our patient aged 23.

The recognition by Jenner of the common association of angina and disease of the coronary arteries led to the theory that it was due to this arterial lesion ; but it was soon found that the coronary arteries might be grossly diseased without the occurrence of angina, and, conversely, that they might be normal in typical cases. It was then suggested, on theoretical grounds, that angina was due to spasm of the coronary arteries. The discovery that the first part of the aorta was frequently diseased in these cases changed the venue to this part, the pain being ascribed to stresses upon it. It was found, however, that these lesions were not invariable. Attention was then paid to the muscle of the heart; but again it was shown that myocardial lesions were inconstant. It was now apparent that angina could not be due to any specific anatomical lesion, but must be the result of some physiological disturbance of the cardiac muscle. Angina, it was suggested, might be due to distension of the heart, with consequent strain upon the muscle, or to muscular exhaustion, or to strain upon a damaged heart or aorta.

Muscular Anoxaemia

The current theory is that angina, however caused, results from muscular anoxaemia. This theory was first formulated by Allan Burns in 1809,[2] and has been elaborated experimentally by J. A. MacWilliam and W. J. Webster[3] in 1923, and clinically by C. S. Keefer and W. H. Resnik[4] in 1928.

Allan Burns's statement may be quoted:

> "In health when we excite the muscular system to more energetic action than usual, we increase the circulation in every part, so that to support this increased action the heart and every other part has its power augmented. If, however, we call into vigorous action a limb round which we have, with a moderate amount of tightness, applied a ligature, we find that then the member can only support its action for a very short time; for now its supply of energy and its expenditure do not balance each other; consequently it soon, from a deficiency of nervous influence and arterial blood, fails and sinks into a state of quiescence. A heart, the coronary arteries of which are cartilaginous or ossified, is in nearly a similar condition. It can, like the limb begirt with a moderately tight ligature, discharge its function so long as its action is moderate and equal. Increase, however, the action of the whole body, and along with the rest that of the heart, and you will soon see exemplified the truth of what has been said; with this difference, that as there is no interruption to the action of the cardiac nerves the heart will be able to hold out a little longer than the limb."

MacWilliam applied a tourniquet to the arm and noted the results: (*a*) so long as the forearm muscles remained inactive, and (*b*) when these muscles were thrown into action. As he found that the symptoms might, in part, be due to turgescence of the limb if the constriction was suddenly applied, he made the limb ischaemic by means of an elastic bandage, applied first to the fingers and the hand, and only removed after the application of the tourniquet. In a limb thus treated and kept immobile no notable result followed for the next twenty minutes, save for some coldness in the part, an inclination to shift the position of the arm, and a certain amount of discomfort at the site of the constriction. Muscular activity of the forearm muscles, however, rapidly produced marked discomfort. Fatigue, as measured by the number and force of contractions executed within a given period, was readily produced, the fatigue point being reached in one-half or one-third of the time required in the normal limb. The forearm, too, rapidly became painful, and, as the fatigue point was approached, so acutely painful that the desire for relief became urgent. Cessation of the exercise did not relieve the pain, which ceased only after relaxation of the tourniquet and the return of blood to the ischaemic muscles. Though relief of pain was thus readily afforded, fatigue was still apparent, and passed off only after some interval of time.

> "It need hardly be pointed out that the foregoing observations have a close bearing upon the problems associated with the production of pain in angina pectoris, showing as they do how readily acute pain can be excited in skeletal muscles working with lack of blood supply, the pain developing while the contractile power, though to some extent weakened, is still sufficient to execute movements of considerable force and energy—that is, long before complete fatigue."

This experimental work is supported by clinical observations. In intermittent claudication severe pain and weakness in the muscles of the legs may ensue on exertion and cease when the exertion ceases. In senile gangrene from obliteration of an artery pain is constant; and in cases of embolic arterial block—for example, in mitral valvular disease—pain is always present if a limb is involved. We have notes of seven cases of this kind where gangrene followed ; and in a case where gangrene resulted from thrombosis of a popliteal aneurysm acute pain in the leg occurred suddenly, and persisted. Intermittent claudication is exactly comparable to angina of exertion; senile gangrene and embolic block to angina of decubitus (infarct).

Keefer and Resnik[4] analysed a series of 399 cases of angina in which post-mortem examination had been made. In 380 cases the coronary arteries were diseased, and in the remaining 19 the aortic valves were incompetent. It may readily be assumed that, in certain circumstances, all these cases suffered from anoxaemia of the myocardium. Disease of the coronary arteries must necessarily limit the flow of blood to the heart, which may be sufficient for the muscle working quietly, but be inadequate to meet any additional exertion. In aortic incompetence the diastolic blood pressure is low, and, as the muscle of the heart is supplied with blood during diastole, its blood supply even at rest must be limited, and may become insufficient if extra exertion demands a more ample supply. It is in the syphilitic cases that angina is most common, for here aortitis is the rule, and the coronary orifices are frequently involved in the lesion. The resulting ischaemia produces pain. There is no essential difference between the angina of exertion and that of decubitus. In the first, the ischaemia is relative and intermittent ; in the second, absolute and permanent. If the circulation is merely impaired, symptoms will only ensue when exertion renders the parts relatively ischaemic, while if the block is complete the symptoms will continue for an indefinite period.

A similar line of reasoning explains the occurrence of angina in all the other conditions with which it may be associated. It occurs, rarely, in severe anaemias in which ischaemia might readily occur. But the ischaemia in these cases is general and affects all the tissues of the body, and the general debility as a rule prevents exertion capable of throwing undue strain upon the heart. In mitral valvular disease and congenital heart disease venous congestion, if present, is general, and the whole heart fails, dyspnoea checking the exertion before the painful stage of ischaemia develops. In coronary disease only a part of the heart is concerned, the greater bulk being unaffected. The heart as a whole can thus respond effectively to a demand for increased activity, but the part whose blood supply is limited now becomes relatively ischaemic, and painful sensations arise. A liability to angina can coexist with the possession of considerable power by the heart as a whole. In one of our patients the blood pressure at rest measured 280 mm. Hg.

Post-mortem Appearances

In this series a post-mortem examination was obtained in 13 cases. Of these, 12 presented infarcts or fibrosis in the muscle, the coronary arteries being extensively diseased. The other patient, a man aged 47, who had been off work for a couple of months on account of shortness of breath and palpitation on exertion, had his first attack of angina when walking, and died two days later during another attack. There was well-marked syphilitic aortitis above the aortic cusps, which were thick and shortened, with a slight recent acute endocarditis superadded. The orifices of both coronary arteries were involved in the aortitis and greatly narrowed. The arteries in their course were normal and the muscle of the heart intact. In two cases there was rupture of the heart.

Vasomotor Disturbances

Vasomotor disturbances not infrequently accompany attacks of angina. In two of our patients the blood pressure during an attack measured 160 mm. Hg, and in the intervals 120 mm. in one case, and 130 to 140 mm. in the other. In another patient an "interval" blood pressure of 140 mm. Hg rose to 190 mm. during an attack. Sometimes attacks occur during a period of high blood pressure, and cease with its disappearance. A stoker, aged 50, caught cold, and a week later began to suffer from attacks of angina on exertion. After a few days he entered hospital and his attacks ceased. His blood pressure, on admission 215 mm., fell steadily, reaching 145 mm. on the fifth day, and 135 mm. before discharge. At the same time his left heart, which on admission had been slightly dilated, recovered its tone. He was in hospital three and six years later suffering from bronchitis and gastritis. The angina had not recurred. His systolic blood pressure was then between 135 and 150.

Some patients who suffer from angina tell us that, while they can in favourable circumstances undertake considerable exertion without distress, attacks ensue if they are exposed to cold, if exercise is taken immediately after food, or if they are subjected to nervous strain. The cause is to be found in vasomotor alterations in the distribution of the blood. Everyone knows that the increased supply of blood to the digestive organs after a meal produces mental languor as the result of the lessened supply available for the brain. Cold, food, emotion, are all factors which influence the blood pressure and the distribution of the blood throughout the body.

Professor MacWilliam points out another possible factor.

"So far as my observations go there is not necessarily such rise of blood pressure on exposure to cold as would throw a decidedly greater strain upon the heart. It seems to me that some transient attacks of pain, with no obvious and sufficient exciting cause, probably depend upon a central nervous factor, an increased susceptibility to pain from irritant influences arising in the heart. Exposure to cold, for instance, often tends to excite neuralgic pains, anywhere, in a susceptible subject."

Such an explanation seems feasible. Many patients are highly strung and intolerant of discomfort, and some are quite unable to bear a blood pressure examination of the left brachial artery. Several, too, have told us that their attacks cease as soon as they have swallowed a tablet of trinitrin, before any effects of the drug could have been manifested.

Intoxications

In rare instances angina seems directly related to intoxications; tobacco, tea, and coffee being the common offenders. One of our patients suffered from exophthalmic goitre and two from myxoedema; in these toxic causes might have been present. F. R. Fraser, however, informs us that in his experience angina is very rare in Graves's disease; so the association was probably accidental. We have seen one clear case due to tobacco.

The patient was a healthy, well-built man, aged 21. His first attacks had occurred six years previously, when serving in the Army, from which he was, in consequence, discharged. At that time he smoked heavily, but subsequently gave it up until shortly before his admission to hospital. The attacks at once recurred. The pain, he said, was never very severe, but sufficient to make him stop work. It was substernal, and occurred only when he was at his work, which was arduous. For a week before admission the pain had been increasing in severity, and he had become short of breath on exertion. His organs seemed sound. His pulse rate on admission was only 40 per minute, but the heart's action otherwise was normal, and the blood pressure within normal limits. His fingers showed a fine, rather irregular, tremor. In a few days his pulse rate rose to 68, and all discomfort disappeared.

Nicotine has a powerful action upon nerve cells, producing an initial stimulation followed by paralysis. At first the pulse rate slows and the blood pressure rises; and this is followed by an increase in the pulse rate and a fall of blood pressure, due, in part at any rate, to direct action of the drug upon the myocardium (Cushny).

THE NERVE SUPPLY OF THE HEART

The exact details of the nervous supply of the heart are as yet undetermined. The pathway of the efferent nerve fibres is fairly clear; the inhibitory impulses travel

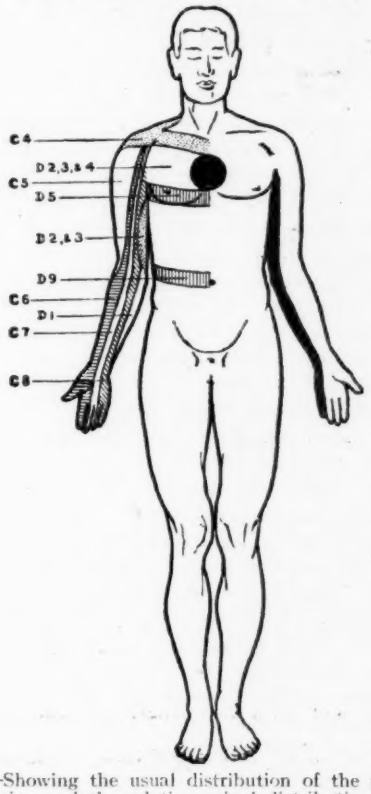


FIG. 1.—Showing the usual distribution of the pain in angina and the relative spinal distribution.

along the vagus nerve, while the accelerator impulses, issuing from the upper dorsal segments of the cord, pass through the inferior cervical ganglion and the inferior cardiac nerve, and perhaps, in part, through the middle cardiac nerve. The pathway of the afferent fibres is less clear. The depressor impulses pass upwards along the vagus nerve, but the other afferent impulses pass through the sympathetic system, entering the cord through the upper five or six dorsal roots. There is no evidence of their passage through any cervical root, or the vertebral nerve (Langley).[5]

The reason for the characteristic distribution of the pain in angina is thus apparent. The cardiac sensations enter the upper dorsal segments of the spinal cord. The peripheral representation of these segments is shown in Fig. 1. Extreme stimulation of the dorsal segments leads

to an overflow of the stimuli to adjacent segments and so to radiation of the pain into the neck and epigastrium.

DIAGNOSIS

The diagnosis is established by the history of attacks of substernal pain occurring on exertion and relieved by rest, with or without the characteristic radiations and angor animi. The distribution of the pain varies in different patients, but it is never referred to the apex of the heart save as a part of a widespread distribution. Pain in this area alone, a common complaint in stout women, is due to causes other than cardiac. Some are gastric in origin, some due to hyperaesthesia of the breast, some to fibrositis or strain of the pectoral muscle.

The majority of our patients were at work, apparently in their usual health, at the onset of their symptoms, only 44 being under medical care at the time. Of these the largest group complained of cardiac symptoms, a lesser number suffering from symptoms due to arterial or renal disease.

Although the majority of our patients made no complaint prior to the onset of their anginous attacks, subsequent examination, as a rule, revealed pathological changes. In 90 cases the heart was enlarged ; in 83 of 136 cases the blood pressure was over 150 mm. Hg, the extremes being 105 and 280 mm. In 14 cases the aortic valves were incompetent, and in 45 mitral murmurs were present though not necessarily due to valvular disease. One patient had mitral stenosis. Apart from murmurs the cardiac sounds were often abnormal, the first sound being weak, muffled, or distant, the second sound accentuated or intoned, suggesting myocardial or arterial disease. The electrocardiograms were frequently abnormal. Out of 122 cases the QRS complex was abnormal in 16 ; T-waves were normal in 46 cases, inverted in Lead I in 39, and in Lead III in 37 cases. Heart-block was present in 5 cases, bundle-branch block in 8, extrasystoles in 13, fibrillation in 4 cases, and irregular rhythm in one. In the exceptional case the most careful examination may fail to reveal any abnormality, though as a rule some deviation from the normal is revealed. It may seem difficult in such cases to relate the pain of angina to the heart, but a little consideration shows the reasons. The cause of the symptoms is insufficiency of the cardiac blood supply from narrowing of the arteries at their orifice or in their course, and neither of these lesions has distinctive physical signs. Syphilitic aortitis is often a post-mortem discovery, as it fails to show itself unless "something happens"—incompetence of the aortic valves, narrowing of the coronary orifices, or aneurysmal dilatation. A purely local lesion of the coronary arteries will only manifest itself by physiological disturbances. In one of our patients who died of angina, due to coronary stenosis at the orifice from syphilitic aortitis, the heart itself was quite sound. Arterial disease is usually associated with high blood pressure, renal disease, syphilis, etc., which present their own characteristic signs. The combination of aortic valvular disease and angina always strongly suggests a syphilitic origin, especially in men under 40 years of age, though it may occur in cases of rheumatic or other origin.

PROGNOSIS

Most patients with angina die more or less suddenly. In experimental ligation of the coronary arteries in animals, the cardiac action becomes irregular from extrasystoles, which are followed by tachycardia, ventricular fibrillation, and death. In some cases of angina the cardiac action rapidly weakens—the pulse rate usually increasing—and failure ensues. Life to the anginous patient is uncertain, but may be prolonged for years. Dr. Arnold died in his first attack ; John Hunter had angina twenty years before he died. Two of our patients died at the age of 76—one twenty years, the other fourteen years, after the first attack. Another died at the age of 70, thirty years after the occurrence of Stokes-Adams attacks, due to heart-block which persisted unchanged. Several patients are working, even playing golf, after five and ten years. Even those who have had definite infarcts may make a good recovery. One of our patients worked hard for five of the seven years which elapsed between his infarct and his death, and one of A. G. Gibson's patients lived an active life for five years after his attack, dying at the age of 72.

The best outlook is that of the toxic and anaemic group if the cause of their symptoms can be removed. Of the other groups, those with a high blood pressure, those with aortic valvular disease, those with a low blood pressure, in order. Patients with high blood pressure can, as a rule, be relieved by appropriate treatment. Syphilitic valvular disease can be helped by specific treatment. Those whose hearts are weak, without obvious cause and so in all probability from coronary stenosis, are unlikely to obtain satisfactory remission of the underlying pathological cause.

Two other factors are important: the exciting cause of the original attack, and the mental attitude of the patient towards his difficulties. It is obvious that if an attack supervenes on trivial provocation it is more likely to be due to a gross lesion than one which follows severe physical or mental strain. The mental attitude is equally important. Can the individual react to his limitations successfully, adapting his life to his altered equilibrium, or will he fail to do so, and continue to run his usual course? An attack of angina gives warning that the pace in future must be lessened.

TREATMENT

The general lines of treatment are well defined. The treatment of the toxic and anaemic cases is obvious ; and that of aortic valvular disease, with angina, is similar to that of the cases without anginous symptoms. In the cases due to coronary disease every endeavour should be made to *prevent undue strain upon the heart until satisfactory anastomoses have had time to form* and to supply the myocardium with sufficient blood. The coronary circulation is ample, and free anastomoses exist between the main arteries, and between their branches. An attack of angina indicates that some arteries are narrowed, and that closure may occur. Functional overactivity of the heart will lead to disaster. In angina confinement to bed is not always helpful, though sometimes useful from the psychological standpoint ; but activities must be kept at a low level for a prolonged period. All other treatment is subsidiary. In patients with high blood pressure increased elimination must be secured by the usual methods. In syphilitic cases specific treament must be instituted. In patients with weak hearts stimulant treatment is indicated.

The treatment of a paroxysm is necessary but of less importance than its prevention. Angina is a danger signal, a sign of some harmful activity, and if we make the patient insensitive to his discomforts he will soon kill himself. If the blood pressure is raised during attacks the nitrites are useful, but they are useless if the blood pressure is not raised. Sedatives should be given without hesitation, morphine being the most effective. Chloroform is sometimes necessary.

Surgical Treatment

The surgical treatment of angina is still in the experimental stage, and we doubt if it will ever prove of much value. All surgical treatment aims at the relief of cardiac pain ; but pain is a useful danger signal, an

indication to the patient that his current activities are harmful and must be stopped at once, or death will ensue. But there remain a few patients whose sufferings are so severe that relief at any cost seems desirable.

Numerous operations on the cervical nerves and ganglia have been performed with the object of severing the sensory communications between the heart and the brain; but so far as our knowledge goes these operations are based upon erroneous theories. The sensory tracts run into the upper dorsal segments of the spinal cord, and not along the neck. It is known that left-sided pain is referred from the heart to the upper five or six segments, the chief pathway being along the inferior cardiac nerves, the stellate ganglion, the vertebral sympathetic ganglia, and the white rami communicantes to the spinal cord. Subsidiary pathways may exist along the middle cardiac nerves and the lower cervical sympathetic trunk to the stellate ganglion; and directly from the heart to the upper dorsal vertebral ganglia[6] (Fig. 2).

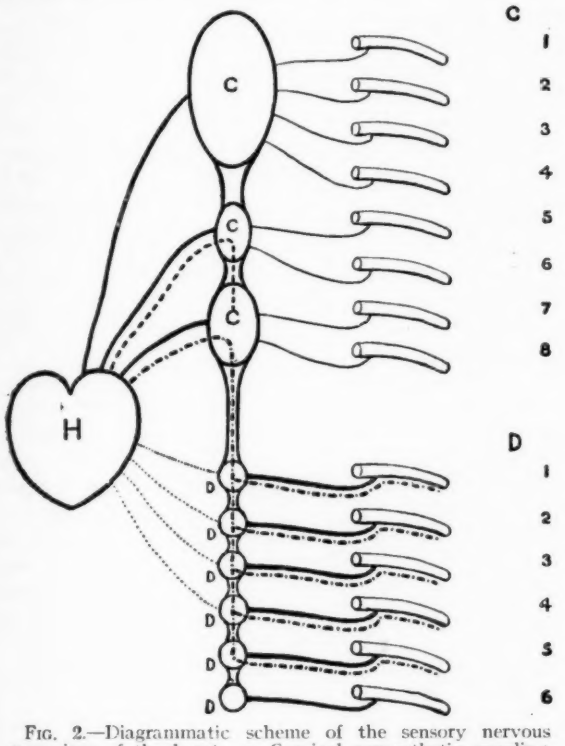


FIG. 2.—Diagrammatic scheme of the sensory nervous connexions of the heart. C, Cervical sympathetic ganglia; D, Dorsal sympathetic ganglia; D, Dorsal nerve roots; —·—·—·—·—·—, Main route of sensory impressions; ----------, Secondary route; ..... Direct route.

The pathways might be blocked by: (1) removal of the stellate and the upper dorsal vertebral ganglia; (2) section or block of the rami communicantes; (3) section or block of the posterior nerve roots.

The least dangerous procedure seems to be alcohol injection of the rami communicantes, of which favourable results have been reported.[7] James C. White has now operated upon 17 patients who were subject to severe and frequent attacks of angina which resisted medical treatment. All recovered from the operation without serious trouble, the only unfavourable sequels being attacks of pleurisy in three cases, which rapidly subsided. In 7 cases complete relief from the left-sided pain followed, and in 5 the relief, while not complete, was considerable. In 3 cases improvement was slight, and in 2 cases no improvement resulted. Five patients have been able to return to work. He states that shortness of breath, peculiar sensations, without pain, in the region of the heart, or mild attacks of right-sided angina, have always afforded sufficient warning to the patient that the danger zone of exertion was being approached. The upper dorsal ganglia were removed in 3 patients whose general condition permitted an open operation by Henry's route. All these patients made good recoveries, and the pain was completely checked.

Eight of these patients have died, seven of them within a year of the operation, one from an empyema, the others from cardiac causes. One patient is alive three years after operation, and two patients two years after operation. Such results must be expected, for the operation is merely palliative and in no way curative. But relief from severe recurrent pain, even if of short duration, may be an inestimable boon to some patients.

We have great pleasure in acknowledging the kindly assistance of many friends; in particular, G. B. Fleming, F. R. Fraser, D. Dale Logan, G. D. Logan, J. A. MacWilliam, J. K. Rennie, James C. White, and Farquhar Macrae.

REFERENCES

1 Ryle, J. A.: Angor animi, *Guy's Hospital Reports*, 1928; *Lancet*, 1928, i, 332.
2 Burns, Allan: *Observations on Some of the Most Frequent and Important Diseases of the Heart*. Edinburgh, 1809.
3 MacWilliam, J. A., and Webster, W. J.: *British Medical Journal*, 1923, i, 51.
4 Keefer, C. S., and Resnik, W. H.: *Arch. Int. Med.*, 1928, xli, 769.
5 Langley, J. N.: *Lancet*, 1924, ii, 955.
6 Jonesco, D., and Enarchesco, M.: *Compt. Rend. Soc. de Biol.*, 1927, xcvii, 977; Cannon, W. B., Lewis, J. T., and Britton, B. W.: *Amer. Journ. Physiol.*, 1927, lxxvii, 326.
7 Swetlow, G. I.: *Amer. Heart Journ.*, 1926, i, 393.
8 White, James C.: *Amer. Journ. of Surg.*, 1930, ix, 98.

THE DEVELOPMENT OF THE SCIENCE OF NUTRITION IN RELATION TO DISEASE*

BY

J. B. ORR, *D.S.O., M.C.*, M.A., M.D., D.Sc.

THE ROWETT RESEARCH INSTITUTE, ABERDEEN

In the last twenty years there have been rapid developments in our knowledge of animal nutrition. This knowledge continues to accumulate at an increasing rate; it has such a direct and important bearing on the prevention or cure of disease that nutrition may now be regarded as a new branch of medical science.

HISTORY

It is interesting to contrast the outlook of last century with that of the present day. At the beginning of the period our ideas were little in advance of those held by the Greeks. Writers still believed that there was only one nutrient substance common to all foodstuffs. Early in the century it was established that heat and muscular energy had their origin in a process of oxidation, and calorimetric studies had shown that the human body obeyed the law of conservation of energy. By the middle of the century, chemists had differentiated food constituents into three "proximate principles"—proteins, fats, and carbohydrates—all yielding energy. At the end of the century, the energy values of different foodstuffs, and the energy requirements of the human body under different conditions, were fairly well known, and the position of the calorie as the symbol of nutrition was well established. Proteins were recognized to be of special value, being necessary for construction in growth and repair of "tear and wear" of the tissues. Dietaries were calculated in terms of calories and protein, and studies in the physiology of nutrition were concerned mainly with metabolic processes involving exchanges of energy, and with the metabolism and chemistry of the proteins and their derivatives, and to a lesser extent of

* Summary of a British Medical Association Lecture delivered to the Dundee Branch on March 11th.

the fats and carbohydrates. With knowledge at this stage it was inevitable that workers should tend to over-emphasize the analogy between the body and a machine as energy converters, and to regard the provision of sufficient fuel for energy and material for repair as the only aspects of nutrition which were of practical importance. Although the limitations of this view are now recognized, we must not underestimate the importance of the work done in the nineteenth century. The succession of investigators from Lavoisier to Fischer established the main principles and laid the foundation of the science of nutrition. Nor can we assume that the research on energy exchange and protein metabolism is finished. Although at the present time popular interest has moved to the newer aspects of the subject dealt with here, there is still work of great scientific interest and practical importance being done on energy exchange and the metabolism of the proteins, fats, and carbohydrates.

The main feature of the work of the present century has been the shift of the centre of interest in nutrition from quantity to quality. The epoch-making experiments on vitamins, and the tardy recognition that a diet may be adequate in calories and protein, and still deficient in some of the inorganic constituents, opened up new fields of research. The discovery that a slight difference between two diets, which could neither be detected by the eye nor determined by chemical analyses, might mean the difference between life and death, completely altered our point of view, and of necessity our methods of work. In addition to chemistry and mathematics we had to resort to the biological test to determine the value of foodstuffs. Calculations based on the results obtained with the calorimeter and the test tube have been supplemented by clinical observations; the adequacy or inadequacy of a diet is now judged by observations on the state of health, the presence or absence of symptoms of disease, the rate of growth, and powers of reproduction. In this way, modern nutritional studies are tending more and more to become of the same nature as clinical studies, and so the gap that existed at the end of last century between the biochemical laboratory and the hospital ward is now being bridged.

RESULTS OF MODERN INVESTIGATION

Let us review briefly the main results obtained in experimental work on animals by these newer methods of investigation. The spectacular effects in diseases arising from vitamin deficiency, such as scurvy, beri-beri, and rickets, are so well known that they need not be further discussed. It is completely established that these diseases can be produced or prevented at will in experimental animals by introducing or withholding certain nutrients from the ration. The work on diseases due to mineral deficiencies which has been done on the larger domestic animals is not so well known to the medical profession. Owing to the very rapid rate of growth of modern improved breeds the mineral requirements of the larger domestic animals are relatively high, and consequently the effects of deficiency are easily demonstrated. Rickets and osteoporosis can be produced by deficiency either of calcium or of phosphorus. In cattle, a condition characterized by inco-ordination of movement, and later by paralysis accompanied by the usual signs of malnutrition, is produced on a phosphorus-deficient diet. In certain districts, goitre accompanied by a high mortality rate in the young occurs, and is prevented by the administration of iodine. Anaemia, which can be prevented by administration of iron, is found both in cattle and pigs on certain diets. All these diseases in domestic animals, which have been produced and studied under experimental conditions, are known to occur, and in some cases to be common under ordinary conditions.

The discovery that these deficiency diseases are due to the lack of specific nutrients, whether vitamins or minerals, was in itself a great achievement, but the practical importance of this work is much greater than the mere cure or prevention of these pathological conditions. In experimental studies with animals it has been observed that there are all stages of malnutrition ranging from what we regard as normal health to that in which the gross and terminal symptoms appear. The signs of minor degrees of deficiency are now well known, and need not be enumerated. Some of the signs are common to, and occur in, the early stages of nearly all deficiency diseases. Generally they are indications of lowered vitality. Young animals have a slower than normal rate of growth, the reproductive powers of adults are defective, the coat is dull and lustreless, appetite is decreased, and the animals show, instead of the *joie de vivre* of the perfectly healthy animal, lethargy and other signs of premature senility. A point of practical importance which should be emphasized is that when these diseases occur under ordinary conditions the number of animals suffering from minor degrees of deficiency usually far exceeds the number showing the gross signs of disease.

Increased Susceptibility to Infections

There is another result of dietary deficiency which is equally far reaching in its practical importance. It has been noted by many workers that susceptibility to certain infectious diseases is definitely greater in groups of animals on deficient diets than in comparable animals on complete well-balanced diets. Classical examples of this are the development of xerophthalmia in rats, and epithelioma contagiosum in fowls, in deficiency of vitamin A. It has been repeatedly noted that animals on diets deficient in the fat-soluble vitamins have a high proportion of deaths from respiratory and alimentary infections. It is believed by some (though we lack definite data on the subject) that in deficiency of calcium and iron there is increased susceptibility to pulmonary infections, and recent work on cattle in South Africa seems to indicate that deficiency of phosphorus increases the death rate, apart from the deaths due directly to styfsiekte or lamsiekte, the direct or indirect cause of which is phosphorus deficiency. The information obtained from these observations warrants us accepting, as a working hypothesis, the view that in animals suffering from even minor degrees of deficiency, resistance to organisms normally present in the body may be reduced, and hence bacteria, which, in an animal on a perfect diet might remain non-pathogenic, find in the abnormal tissues and fluids of the host a favourable medium in which their activities can give rise to the specific signs of infection. This aspect is only beginning to be explored. It is an intricate subject to study, because there are involved such a large number of factors, some of which are difficult to control.

It is impossible here to do more than indicate the nature of the work being done in this field of research. There are three important lines: attempts are being made to ascertain (1) the changes which occur in the composition of the blood under different dietary conditions; (2) the effect of diet on immunological reactions; and (3) the effect of diet in altering either the nature of the flora or the pathogenicity of the existing flora in the respiratory, intestinal, and other areas in the body.

Diet and the Composition of the Blood

Biochemical examination of the blood of experimental animals has shown that the level of some of the mineral elements is by no means so constant as was at one time thought. For example, it has been shown that the feeding of a diet low in calcium and high in phosphorus results in a lowering of blood calcium and a rise of blood

inorganic phosphorus to an extent which was thought impossible a short time ago. In an experiment on sheep at present being carried out, it has been found that the blood calcium has been nearly halved, and inorganic phosphorus more than doubled. On the other hand, in cattle suffering from aphosphorosis, the inorganic phosphorus in the blood may be less than half the normal. These results in large animals are on the same lines as those which have been previously noted in rats. Studies are also being made on the influence of the diet on the alkali reserve of the blood, which, as is well known, can be altered within fairly wide limits by medication.

These experimental studies in which workers are seeking for a correlation between composition of diet and composition of blood are already giving fairly definite results in so far as the inorganic constituents are concerned. Comparatively little headway has been made, however, with the organic constituents, though observations on these are being carried out.

Diet and Immunological Reactions

Side by side with this inquiry by chemical methods, investigations are proceeding on the effect of diet on immunological reactions. Here, also, positive results are being obtained. Thus, in observations on agglutinin formation in guinea-pigs and rats inoculated with *B. typhosus*, it has been noted that there is a significantly low titre in animals on a diet deficient in phosphorus, and both agglutinins and bacteriolysins against *B. typhosus* in rats are reduced on diets deficient in vitamins A and D, or B and E. In work on sheep very marked changes have been found in animals transferred from deficient experimental rations to pasture feeding.

Diet and the Flora

The effect of diet on the flora in different areas of the body has been studied in the case of the intestine for many years. It is well known that the reaction of the intestinal contents can be altered by the food, and that such alterations cause changes in the bacterial flora. Of special interest are some observations on the effect of changes in the reaction of the blood. Most bacteria flourish best in a slightly alkaline reaction. It has been observed that treatment which tends to alter the *p*H of the blood to the acid side, or which lowers the alkali reserve, reduces antibody formation in response to infection. Reduction of bactericidal power has been obtained by an administration of hydrochloric acid, and by section of the spinal column, which causes a fall in blood alkalescence. On the other hand, a directly reverse effect has been noted in a recent study of wound infections. In controlled experiments in which alkali reserve, *p*H of blood, and *p*H of wound exudate were estimated, it was found that a rise in the alkali reserve above normal was associated with an increase in the number and virulence of the bacterial flora, and that a shift to the acid side resulted in a reduction of the number of infecting organisms. If these results be confirmed they show that the alkali reserve, which can be controlled by the diet, is an important factor in resistance to infection, and that changes in its level affect differently the individual types of bacteria.

Even this brief consideration of work along these three lines is sufficient to show that we have here a most promising field of research. The scrappy data which we have already obtained prove that the nature of the diet affects the powers of the body fluids to deal with infection, and, what is equally important for the success of further work, that chemical analyses of the blood and serological tests give us a means to make a quantitative assessment of the effect.

In view of the vast extent of this field, however, we cannot claim to have done more, so far, than make a few preliminary observations. Even the meagre results obtained have not yet been all confirmed, nor is their full significance clear. More experimental work is needed before we can begin to link up the biochemical, immunological, and clinical data to see what correlation exists between different dietary factors, the chemical composition of the blood, its immunological reactions and susceptibility to different pathogenic organisms. When we *do* reach that stage we will have greatly increased our powers to prevent and cure disease. We will be able, by dietary measures, to keep animals in such a state of health that when invasion by organisms takes place the *vis medicatrix naturae*—the only therapeutic agent of any real value—will be able to exert its full beneficial influence, unhampered by abnormal conditions of body fluids and tissues due to faulty diet.

NUTRITION AND THE HUMAN BEING

So far we have confined the discussion almost exclusively to the results of experimental work on animals. Let us consider to what extent our findings are applicable to human beings. We know that deficiency diseases such as scurvy and rickets occur in the human being, and are cured by the same dietary manipulations as are found to prevent or cure them in animals, and there is abundant evidence to show that when these diseases appear, minor degrees of malnutrition are prevalent among the whole population living under the same dietary conditions as those suffering from the gross symptoms of disease. Thus it is now recognized that beri-beri is but the terminal gross manifestation of deficiency disease, the actual outbreaks being merely superimposed on a condition of chronic ill-health.

We cannot put groups of human beings under experiment to test directly the effect of diet on the chemical composition and serological reactions of the blood and on resistance to disease. Recently, however, observations have been made on two tribes in Africa, living under conditions almost as favourable for the study of this problem as if the diets had been prearranged. The diet of one of the tribes consisted chiefly of cereals, and was found to be deficient in calcium, and almost certainly in vitamins A and D. The diet of the other tribe, consisting largely of milk, meat, and raw blood, though defective in other respects, was rich in those nutrients deficient in the former tribe. Unfortunately, samples of blood could be obtained only from members of the cereal-eating tribe, but the incidence of disease was studied in both. It was found that the average calcium content of the blood serum in the tribe on the cereal diet was only 9.4 mg., compared with an average of 11.4 mg. for Europeans living in the same district. A survey of the incidence of disease showed that in the tribe with the cereal diet, pulmonary conditions, bronchitis, and pneumonia accounted for 31 per cent. of all cases of sickness, tropical ulcers 33 per cent., and phthisis 6 per cent., compared with a percentage of 4, 3, and 1 respectively in the tribe with the meat, milk, and raw blood diet. In the latter tribe the chief disease was rheumatoid arthritis. There is obviously in these two tribes a correlation between the nature of the diet and the resistance to disease.

Some surveys on the incidence of disease in this country show a social distribution which indicates a possible connexion with diet. In a recent study in which the population was divided into five social classes, ranging from the professions and higher ranks of business to unskilled labour, it was found that at ages between 20 and 65 the death rate from respiratory diseases was 3.3 times, from heart disease 2.24 times, and from cancer

1.54 times as high in the fifth class as in the first class. There are here other environmental factors which complicate the issue, but the fact that the diets of the professions and higher ranks of business life are so much more varied and better balanced than the cheaper, carbohydrate-rich diet of unskilled labour, suggests that diet may be a factor, and warrants further study.

If malnutrition with increased susceptibility to certain diseases commonly exists, it should be possible to show that dietaries in common use are faulty. Unfortunately, we have too little information on the requirements for either vitamins or minerals, the two classes of nutrients to which our discussion has been limited. Nor have we much exact information as to the amount of intake of these nutrients. We have had many dietary surveys of the protein, fat, and carbohydrate intake, but very few on those dietary factors which we are finding of so much importance for health. One such survey, recently completed in Scotland, has yielded results which suggest that in a large proportion of families the diet does not supply a sufficiency of certain minerals to maintain the maximum rate of growth. In 607 families in the seven largest Scottish towns it was found that in only two cases was the energy value of the diet below 2,000 calories per man. There was thus no indication of any gross undernutrition. If we take Sherman's figures, however, which are almost the only reliable data we have on the subject, as a true indication of the requirements of the growing child for calcium and phosphorus, we find that there was a deficiency of calcium in 24.5 per cent. and of phosphorus in 23 per cent. of the dietaries. The position was worse in the case of iron. In 61.6 per cent. of families the amount of iron in the food was below that regarded by those who have worked on the subject as the optimum intake. In 41 per cent. of the families the protein intake, though sufficient for adults, was below the optimum requirement for growth in children.

We must not place too much importance on these findings, since far too little work has been done to enable us to know, with any degree of certainty, the requirements of the child for these food constituents. The results, however, appear to be of some significance when they are considered in the light of a test on the value of an increased consumption of milk in children drawn from the households of which the survey was made. In that test it was found that the addition of milk, either whole or separated, during a seven months' experimental period was accompanied by a rate of growth as indicated by increase in both height and weight about 20 per cent. greater than that in the children not receiving the extra milk. Clinical examination of the children showed that the increased rate of growth was accompanied by an improvement in the general condition. The improvement could not have been due to an increase in the number of calories, because it was found that in different groups of children who received carbohydrate and fat-rich biscuits of equal caloric value to the milk, there was no improvement in condition or increase in rate of growth. This is in accordance with the finding of the survey that the calorie intake was, on the whole, ample. It may be assumed that the effect of the milk was due to the fact that it supplied nutrients which the survey showed to be otherwise deficient.

CONCLUSIONS

We have here brought together some of the more striking results of experimental studies on animals and of observations on human beings, to illustrate the nature of the recent developments of our knowledge of nutrition in its relation to disease. It is obvious that the progress already made in this new field of study is of great importance in both preventive and therapeutic medicine. The principles of some of the results have been applied in stock farming, and have led to a reduction in disease and to increased output by farm stock. In human medicine the effects of their application on children, who are more likely to suffer from deficiencies than adults, are well known, especially as regards the cure and prevention of rickets and scurvy. The spectacular results obtained in the United States and Switzerland in the prevention of endemic goitre and cretinism by iodine medication, and such facts as the prevention of beri-beri by the improvement of rations through the substitution of unpolished for polished rice, are now common knowledge. The recent work on the influence of the acid-base ratio of the diet on chronic nephritis gives an interesting example of the application of nutritional science to therapeutic ends.

The potential value of the information acquired from the research work we have described, as well as the practical results, give every encouragement to extend our studies. Some of the lines along which work should be conducted are clear. We need more information dealing with the amounts of different nutrients required for optimum growth in children, and for the maintenance of health, and also as to the amounts of these nutrients present in dietaries in common use. A concerted international effort to elucidate whether there is a correlation, and, if so, to what extent, between dietary habits, physique, and incidence of disease in the different populations throughout the world would yield results of fascinating interest. The League of Nations has recently carried out a survey of the diet of Japan in relation to beri-beri. The wider problem of the world correlation between diet and health appears to be of sufficient importance to warrant the attention of that council.

In addition to such dietary studies, an urgent need exists for more clinical research on nutritional lines. There are a number of diseases of which the main symptoms are those of disturbance of the normal digestive or metabolic processes—for example, gastric and duodenal ulcers, constipation and its sequelae, rheumatism, anaemias, high blood pressure, and cardiac and nephritic disorders. The etiology of these remains obscure. It has been suggested that they originate in long-continued errors of diet. As a matter of fact, we have very little definite evidence to show to what extent hereditary, nutritional, and other factors are involved. An extended series of studies of previous nutritional histories, of the condition of the circulating fluids, and of the influence of dietary factors on the course of these diseases might throw much-needed light on their etiology.

Future advances in the study of nutrition as applied to human medicine will undoubtedly be made through team work, especially of biochemist, immunologist, and clinician. An essential feature of such work should be the co-ordination of research on the larger domestic animals with that on human beings. The main problems are essentially the same in both fields, and, indeed, some of the diseases on which more work is urgently required are common to man and the higher mammals. For example, osteoarthritis is as common in the horse as in man, and simple goitre appears to occur in all mammals in certain areas where its distribution is coincident with that of endemic goitre in the human population. The nutritional factor in resistance to tuberculosis, which is now recognized as being of importance in human medicine, is equally important in the dairy cow. It is to be hoped that, in the future, in those comprehensive studies which are initiated or supported by the State, there will be co-operation, not only between individual workers in different branches of science, but also between medical and veterinary research institutions and organizations.

THREE CASES OF PSITTACOSIS WITH TWO DEATHS

BY

H. R. FISHER, M.B., CH.B.LIVERP.

AND

R. J. HELSBY, *M.C.*, L.R.C.P., L.R.C.S.ED.

It has been generally accepted that psittacosis is usually caused by contact with parrots, and it must be admitted that the human cases of the disease that were being so regularly reported in the medical journals during the early part of 1930 appeared to cease after the regulations of the Ministry of Health prohibiting the importation of parrots came into force in May of that year. The small outbreak described below suggests, however, that psittacosis may still be occurring unrecognized, and that the possible contact with birds of patients suffering from symptoms suggestive of an atypical pneumonia or enteric fever should not be overlooked, especially as these three cases show the very real danger of human case-to-case infection in psittacosis.

We were fortunate in obtaining the collaboration of the Ministry of Health in the investigation of these cases, and also of Dr. Dorothy S. Russell and Dr. S. P. Bedson of the London Hospital, both of whom have kindly contributed notes on the pathological and bacteriological findings, which appear below; and we wish to record our appreciation of the assistance given to us.

On October 21st, 1930, one of us (H. R. F.) returned from a holiday and found that his locumtenent had been greatly puzzled by a case which eventually appeared to have been one of pneumonia.

CASE I

The patient, a lady, aged 45, on a visit with another lady, began to feel unwell on October 11th, the day after her arrival. During the first four days of her illness, the only symptoms were severe headache, pyrexia (103° F.), and quickened respirations; later she had constipation, followed, after a dose of Epsom salts, by a somewhat severe diarrhoea. She also had attacks of epistaxis both in the early days and later in her illness. After the fourth day signs of pneumonia developed at the angle of the right scapula; there was little cough, no sputum, and no dyspnoea. This condition persisted until October 19th, when the temperature began to fall. By October 21st the temperature was normal and the patient felt pretty well. The signs of consolidation were quite marked in the region mentioned, and there were coarse crepitations. The temperature rose to 100° on the following evening, but came down in a few hours, and remained normal throughout her convalescence. The signs at the angle of the right scapula remained practically unchanged until October 28th, when they suddenly disappeared in one night. Her friends noticed that, during the acute period of her illness, the patient showed slowness and thickness of speech, though this was quite foreign to her usual condition. During convalescence her speech became normal, but she was able to remember very little about her illness.

CASE II.

Towards evening on October 26th the second lady, aged 35, who had slept in the same bed as the first patient, and had nursed her during the first week of her illness, felt unwell and shivery. On the following morning she was very drowsy, and suffered acutely from occipital headache and photophobia; her temperature was 102°, pulse 110, respirations 30. On October 28th her temperature rose to 104°; the headache and photophobia were still severe, and the patient said she felt as if her hair was being pulled. There were no physical signs, no cough, sputum, or dyspnoea. There was no tenderness anywhere except in the occipital region. The bowels were acting normally, and, except for some abdominal distension, she had no gastro-intestinal symptoms. On October 29th the temperature rose to 104.5°, the pulse was 116, and the respirations 30; the patient had some epistaxis, but her condition was much the same, except that the drowsiness and photophobia were less marked.

In the meantime it had been discovered, in the course of a chance conversation with the convalescent patient, that the ladies had an aviary at their home, and that the first patient had nursed a sick budgerigar for some days immediately preceding her illness. These facts, coupled with the suggestive course of the illness, prompted communication with the Ministry of Health.

On October 30th the temperature rose to 105°, the pulse was 118, respirations 30; there was slight impairment of note and diminution of the breath sounds at the angle of the right scapula. These signs became more pronounced during that day. On October 31st the temperature remained at 105° (there had been no remissions), respirations were 32, and the pulse varied between 102 and 120. The signs in the chest had become marked; there was bronchial breathing, dullness in the area already mentioned, and rales all over. Cough was slight, and there was no dyspnoea. The patient vomited a little, and started menstruating prematurely. S.U.P. 36 was given on this day with no result. This patient also showed some slowness of cerebration, and "wandered" during the night, though, when she finally understood a question, she answered intelligently but in a slow, hesitant manner. On November 1st the temperature was 104.5°, pulse 110, respirations 38; her condition was much the same. On November 2nd the temperature was 100° in the morning, with pulse 96, respirations 32; in the evening it was up again to 104°. On November 3rd and 4th the patient was worse; she took no interest in her surroundings, and moaned and sighed loudly for long periods; the first patient had also moaned a great deal. Her temperature was swinging between 99° and 104°. At midnight (November 5th–6th) the patient became collapsed; but the pulse soon strengthened and the temperature, pulse, and respirations began to fall until at 6 a.m. they were normal. She felt much better, and chatted in her usual way. That evening, however, the temperature rose to 102°, the pulse and respirations quickened, and she vomited. On November 7th the temperature was swinging between 99° and 104.5°, while the vomiting continued. On November 8th the patient became cyanosed, complained a great deal of epigastric pain, and died at midday.

It seems likely that this lady was infected by the previous patient, with whom she was in close contact during the first week of the latter's illness. Still, the possibility that she also came into contact with a sick bird before leaving home on October 10th cannot be entirely disproved; though, as she left home on October 10th and did not begin to be ill until October 26th, the incubation period was sixteen or more days. While this is not unknown, it is less usual than one of eight to fourteen days, a period coinciding with the time of her contact with an acutely ill patient.

CASE III

During the night of November 19th–20th, eleven days after the previous patient's death, a trained nurse, aged 63, who had been in attendance on both these cases, felt unwell. On November 20th she had epistaxis, and complained of frontal headache and vomiting. The pulse was 80, temperature 99.5°. On November 21st she was removed to hospital. This patient was undoubtedly infected by the patients she had been nursing; at no time had she been in contact with sick birds. During the first day after her admission into hospital there were no physical signs in the chest, but she vomited and was constipated; her temperature was 104° F., pulse 92,

respirations 30. On November 23rd there was dullness over the left lower lobe, with rales over the right side. The sputum was scanty and rusty. She complained a good deal of frontal headache, and had difficulty in swallowing. After November 24th she began to have incontinence of urine and faeces, which continued until her death. On November 26th there appeared to be paralysis of the left side of the body and the right side of the face, but this passed off in a couple of days. Gradually, however, nervous symptoms became more marked, together with abdominal tumescence, drowsiness, and symptoms generally reminiscent of typhoid fever. In fact, during the last five days of her life, the patient was in a typhoid state, more or less unconscious, and with a subnormal temperature. She died on the morning of December 3rd.

Two other nurses in attendance on the first two cases remained well, and there were no other cases in the home of the original patients.

SUMMARY

The sequence of events in these cases was as follows:

1. At the end of September or the beginning of October, 1930, patient No. 1 nursed a sick budgerigar.
2. October 11th, patient No. 1 fell ill when away from home on a visit. She eventually recovered, but as late as January 15th, 1931, was reported still to be suffering from insomnia, lack of energy, and occasional depression.
3. October 26th, patient No. 2 fell ill. She had nursed patient No. 1, had shared her bed, and was probably infected by her.
4. November 8th, patient No. 2 died.
5. November 19th, patient No. 3 fell ill. She was a hospital nurse in attendance on the previous patients from October 23rd, and was infected by them.
6. December 3rd, patient No. 3 died.

The source of infection of the budgerigar was not definitely traced. A number of other birds, budgerigars, foreign finches, and a blue and white canary, had died in the aviary from an unknown cause during September and the beginning of October, and the dealer who had supplied the birds admitted to deaths among the birds in his shop. Later on this dealer was found to have been importing budgerigars from the Continent, but he maintained that the birds he had sold to these ladies were home-bred.

SUMMARY OF NECROPSY (DECEMBER 4TH, 1930)

BY

DOROTHY S. RUSSELL, M.D.Lond.

RESEARCH ASSISTANT, PATHOLOGICAL INSTITUTE, LONDON HOSPITAL

Haemorrhagic broncho-pneumonia of lower lobe and of lower third of upper lobe of left lung. Early broncho-pneumonia of lower lobe of right lung. Congestion and emphysema of lungs. Anthracosis, engorgement, slight subacute inflammation and sinus catarrh of bronchial lymph glands. Acute and subacute inflammation without enlargement of spleen. A few streaks of submucous haemorrhage in caecum close to ileo-caecal valve. Slight injection of mucosa throughout intestinal tract. Slight fatty degeneration of myocardium. Considerable ischaemic atrophy of kidneys. Albuminous degeneration of tubular epithelium in kidneys; fatty degeneration of a few groups of second convoluted tubules. Severe degeneration of hypertrophied media and intima in large and small arteries. Ante-mortem thrombus adherent to ulcerated intima of anterior wall of very atheromatous abdominal aorta 3 cm. above bifurcation. Focal microscopic areas of bone formation in atheromatous and calcified intima beneath thrombus. Foramen ovale closed. Cardio-vascular hypertrophy. Focal ischaemic fibrosis of myocardium. Very severe atheroma of coronary arteries. Almost complete obliteration of right coronary artery by calcareous atheroma 1 cm. from its origin. Small area of softening and gliosis in right pulvinar. Area of gliosis and infiltration with pigment granule cells in ventral border of optic thalamus. A few petechial haemorrhages in basal ganglia. Congestion of brain. Central congestion of lobules of liver. Slight back pressure congestion of kidneys and spleen. Pitting oedema of left leg. Ante-mortem thrombosis of left femoral vein at brim of pelvis. Slight fatty infiltration of parenchyma and conspicuous fatty infiltration of Kupffer cells in liver. Fine granules of lipochrome in centres of lobules of liver and in myocardium. Brown atrophy of thyroid gland. Fibrous peritoneal adhesions between omentum and loops of small intestine obliterating pouch of Douglas. Slight focal chronic perisplenitis. Slight dilatation and injection of pelvis of right kidney. Aberrant branch of right renal artery entering lower pole of right kidney. Pancreas and suprarenal bodies normal. No macroscopic abnormality in muscles of abdominal wall. No enlargement of Peyer's patches or of solitary follicles.

MACROSCOPIC APPEARANCES

Lungs.—There was considerable injection of the trachea and bronchi. The pleural sacs contained no free fluid. Both visceral and parietal layers of the pleura were uniformly smooth and glistening. The lungs appeared small and congested. The upper lobes were conspicuously emphysematous, while the lower lobes felt boggy and slightly crepitant. The lower lobe of the left lung was heavier and fuller than the right, and felt unevenly nodular. On section the right lung appeared very congested. The upper and middle lobes were emphysematous. In the lower lobe there were numerous small, irregular, apparently peribronchial, areas of haemorrhage; there was no evidence of bronchitis or of consolidation; a little blood-stained frothy fluid exuded from the cut surface on pressure, and the tissue was aerated and floated in water. The left lung, on section, appeared different. With the exception of the upper two-thirds of the upper lobe the lung looked less aerated. At the apex of the lower lobe was an area of rather firm, swollen, finely granular, dusky, pinkish-grey consolidation. No fluid was expressed from this by gentle pressure. A similar area occupied the adjacent middle third of the upper lobe. In the remainder of the lower lobe there were numerous, sometimes confluent, finely granular areas of pinkish-grey peribronchial consolidation lying in a haemorrhagic ground. Dirty greyish-yellow slime exuded from the centres of these areas on pressure. The intervening lung tissue was deeply congested, and on pressure exuded a little fluid and very little air.

Bronchial Lymph Glands.—These glands were small and firm. The cut surfaces were flat and grey, and mottled with deposits of soot.

Spleen.—The spleen was small and moderately elastic. The capsule over the diaphragmatic surface showed a few irregular patches of fibrous thickening, between which were numerous pin-point glistening fibrous granulations. On section the cut surfaces were flat and firm. The trabeculae were easily seen, but the Malpighian bodies were indistinguishable. The pulp was a dull pink mottled with numerous small patches of deep red. There was no macroscopic evidence, therefore, of inflammation.

MICROSCOPICAL APPEARANCES

Lungs.—Blocks from the right lower lobe, the consolidated areas in the middle third of the left upper lobe and the apex of the left lower lobe, and from the broncho-pneumonic part of the left lower lobe, were taken for examination. In the right lower lobe some bronchioles were partly or completely filled with red corpuscles; most were filled with necrosed desquamated epithelium, ghosts of round cells, amorphous granular lumps, a few red corpuscles, and masses of cocci and bacilli. A few alveoli at the periphery of the section were emphysematous or partly collapsed; the remainder were filled with albuminous coagulum and a few red corpuscles, occasionally with many red corpuscles. They contained no fibrin, but everywhere were large numbers of Gram-positive cocci and Gram-positive and Gram-negative bacilli. Of these,

streptococci were the most abundant. In a few places were groups of Gram-negative bacilli of the influenza type. Immediately round some of the bronchioles the alveolar walls were necrosed and contained brown pigment. The pleura was unchanged. In the apex of the left lower lobe the bronchioles were either filled or lined with albuminous coagulum, desquamated epithelium, and red corpuscles, or a similar exudate containing neutrophil leucocytes. The walls of the bronchioles were very congested, and conspicuously infiltrated with large mononuclear cells, neutrophil leucocytes, and small lymphocytes. A similar infiltration was seen in the septa of the lung. The respiratory bronchioles occasionally contained coagulum and red corpuscles alone, but usually they contained numerous neutrophil leucocytes. Some of the adjacent alveoli were also crowded with neutrophil leucocytes, but mostly they showed coagulum, red corpuscles, a few neutrophil leucocytes, and desquamated epithelial cells, many of which were remarkably large. Other groups of alveoli were stuffed with red corpuscles, and were less distended. The distribution of these haemorrhagic areas appeared fortuitous: occasionally they encircled bronchioles or respiratory bronchioles, but in other instances they were of larger size and did not appear to have any special relationship to other structures. In these larger areas there were often poorly defined foci in which the alveolar walls were necrosed. Very little fibrin was present. The tissue was crowded with a great variety of Gram-positive and Gram-negative cocci and bacilli, among which streptococci were predominant. In one small area many minute bacilli resembling the influenza bacillus were present. The pleura was not affected. In the lower part of the left lower lobe there was great distension of the bronchioles and respiratory bronchioles with neutrophil leucocytes, and sometimes with red corpuscles as well. The walls of the bronchioles were engorged and infiltrated as in the section from the apex already described. There was great purulent infiltration of the alveoli about the bronchioles, and around these was an outer zone in which the alveoli were slightly collapsed and occupied by albuminous exudate, red corpuscles, and occasionally a little fibrin. In other peripheral areas the alveoli contained less blood and more numerous neutrophil leucocytes and large epithelial cells. In some of the more haemorrhagic areas there was necrosis of the alveolar walls. Organisms were abundant as before. In the left upper lobe many of the bronchioles were empty ; a few contained purulent exudate. Their walls were congested, but were less heavily infiltrated with cells than in the lower lobe. The respiratory bronchioles were distended with neutrophil leucocytes, and about these the alveoli were conspicuously infiltrated with neutrophil leucocytes, mononuclear leucocytes, desquamated epithelial cells of the remarkably large size seen in other sections, and a few red corpuscles. These pneumonic areas were sometimes confluent. In other places the alveoli were less distended and filled either with red corpuscles or with bubbly coagulum and occasionally a little fibrin. The septa of the lung were infiltrated with many neutrophil leucocytes and large lymphocytes. A great many organisms were present throughout the tissue as before. The pleura was unaffected.

Lymph Nodes.—The left bronchial lymph nodes were considerably engorged, and in a few places there were minute haemorrhages. Many large lymphocytes and plasma cells were present in the lymphadenoid tissue, but there was no emigration of leucocytes. There was an increase in the number of endothelial cells in the sinuses, and many had been desquamated. The glands contained considerable deposits of soot.

Spleen.—In a section of the spleen there was focal engorgement of the pulp. In the venous capillaries or sinuses there was an excess of neutrophil leucocytes and some large macrophages, a few of which contained red corpuscles. There was also an infiltration of the Malpighian bodies with neutrophil leucocytes. These were found round the central arteries and in the periphery, where they were accompanied by a few eosinophil leucocytes. In the pulp strands there were many plasma cells and large lymphocytes, a considerable number of neutrophil leucocytes, and a few macrophages. There was severe hyaline degeneration of the media and intima of the arterioles.

DISCUSSION

The condition present in the lower lobe of the right lung appeared to be an early broncho-pneumonia. The necrosis associated with brown pigmentation of the contents of the bronchioles and of adjacent alveolar walls was probably due to acid digestion. The broncho-pneumonia may have been due to the inhalation of stomach contents before death, or it may have been an early stage of the condition seen in the apex of the left lower lobe complicated after death by acid digestion. In the left lung there was a broncho-pneumonia, characterized by purulent bronchiolitis of respiratory rather than of larger bronchioles, and a pneumonia which began with haemorrhage and marked albuminous exudate and later became leucocytic. There was extremely little fibrin formation and no thrombosis of vessels. The changes present in the apex of the lower lobe appeared to represent a stage earlier than those seen in the lower part of the left lower lobe and in the upper lobe. The pneumonia differed from an ordinary broncho-pneumonia in the absence of any marked degree of collapse, in the great abundance of albuminous and haemorrhagic exudate, and in the predilection of the inflammation for the respiratory bronchioles. It differed from a pneumonia in the concentration of the inflammatory reaction about the respiratory bronchioles. The presence of such large numbers of bacteria in all the sections could be explained by the lapse of over twenty-four hours between the time of death and the necropsy without storage of the body in a cold chamber ; and also, perhaps, by the inhalation of stomach contents immediately before death. The great variety of bacteria found in the tissues made the task of identifying the pathogenic organism a hopeless one.

There was only a slight subacute inflammation of the bronchial lymph glands. The absence of enlargement of the spleen suggested that the acute inflammation found on microscopical examination was early and therefore a terminal event. The inflammation was probably due to a bacterial invasion of the lungs in the later stages of the illness. The septicaemia, therefore, was probably a late event. The only evidence of toxaemia was the presence of a little fatty degeneration of the myocardium, and albuminous and slight fatty degeneration of the kidneys. There was therefore little evidence of toxaemia.

A contributory cause of death may be found in the condition of the cardio-vascular system. Necropsy revealed extreme degeneration of the arteries and hypertrophy of the heart. In addition, there was almost complete occlusion of the right coronary artery by atheroma. Microscopically there was hypertrophy of the myocardium and of the muscular arteries, associated with very severe degeneration of both media and intima. In the abdominal aorta a section of the wall taken through a mass of adherent ante-mortem thrombus showed foci of bone formation in the degenerated intima. Further, the arterial change was correlated with ischaemic fibrosis of the myocardium and kidneys, and with microscopic patches of softening, gliosis, and rusty pigmentation in the basal ganglia. A moderate degree of terminal heart failure was indicated by the central congestion of the hepatic lobules, and slight congestion of spleen and kidneys, and perhaps by the few recent petechial haemorrhages in the brain. Ring-haemorrhages, evidently of toxic origin, have been observed in this laboratory in two brains from cases of psittacosis (Sturdee and Scott, 1930). The haemorrhages in the case under discussion were exceedingly scanty, were not ring-haemorrhages, and were associated with evidence of a few old haemorrhages. It is probable that they were due to the chronic vascular

degeneration, and not to an acute toxic change. The slight degree of fatty degeneration of the myocardium has already been quoted as evidence of toxaemia. It might, however, be argued that the degeneration was the sequel and not the precursor of the heart failure. The short duration of the heart failure, as estimated by the microscopical as well as the macroscopical changes in the organs, does not support such an argument. The thrombosis of the left femoral vein may either have been secondary to the heart failure or it may have been caused by the action of the psittacosis virus. Some support for the latter view lies in the finding of extensive pulmonary thrombosis by Turnbull (1930) in the first case of this disease reported from the London Hospital.

The conclusion drawn from the examination as a whole is that death was caused by a haemorrhagic bronchopneumonia, acting upon a subject in whom the cardiovascular system was already greatly impaired by degeneration.

The inflammation of the lung resembled that described in the first case of psittacosis examined in this hospital in the abundance of albuminous and haemorrhagic exudate and the presence of conspicuously large desquamated epithelial cells; but it differed in being a bronchopneumonia rather than a pneumonia, in the almost complete absence of fibrinous exudate, in the absence of capillary and arterial thrombosis, and in the presence of bacteria in great number and of great variety. It was also complicated by acid digestion.

In impression preparations made from the spleen and stained by Giemsa the elementary virus bodies described by Levinthal, Lillie, and Coles were found.

NOTE ON THE BACTERIOLOGICAL FINDINGS IN THE ABOVE OUTBREAK OF PSITTACOSIS

BY

S. P. BEDSON, M.D., M.Sc.Dunelm.

SENIOR FREEDOM RESEARCH FELLOW

(From the Hale and Dunn Clinical Laboratories, London Hospital)

The material received for examination consisted of: (1) blood from patient No. 2; (2) a budgerigar (*Melopsittacus undulatus*) belonging to patients Nos. 1 and 2; and (3) organs obtained post mortem from patient No. 3.

Blood of Patient No. 2.—This was collected in an equal amount of 2 per cent. citrate on November 3rd, 1930, the seventh day of disease. It was received in the laboratory November 5th, and proved to be free from cultivable bacteria. Two mice, M. 235 and M. 236, were inoculated with this citrated blood, each animal receiving 0.5 c.cm. subcutaneously and 0.5 c.cm. intraperitoneally. One mouse, M. 236, died on the thirty-fifth day after inoculation, the other was killed when very ill on the thirty-sixth day. The post-mortem findings were in keeping with the death having been due to the virus of psittacosis. The spleen of Mouse 236 was suspended in 5 c.cm. tyrode and proved to be free from cultivable bacteria. Two mice, M. 255 and M. 256, inoculated intraperitoneally with 0.5 c.cm. of this suspension on December 11th, are still alive and well, February 23rd, 1931.

The Budgerigar B. 157.—This bird, belonging to patients Nos. 1 and 2, and nursed by patient No. 1 before her own illness, had been suffering from diarrhoea, and though it was in fair condition when seen by Dr. Sturdee of the Ministry of Health, November 3rd, he decided to have it killed and examined for the presence of psittacosis virus. Post-mortem examination of the bird showed injection of the intestines, a chamois-leather liver (fatty change), and enlargement of the spleen. The lungs appeared normal. The spleen and a small portion of liver—0.25 gram in all—were suspended in 5 c.cm. N/50 phosphate *p*H 7.6. The suspension was culturally sterile, and two mice were inoculated with it. The results obtained in this primary transmission experiment and subsequent passages are given in Table I.

TABLE I

Passage	Material	Mouse	Result
Primary transmission	Suspension of spleen and liver of budgerigar in phosphate; unfiltered; culturally sterile	M.233	Killed, moribund, tenth day
		M.234	Killed, very ill, tenth day
1st passage	Spleen of M.233 suspended in 10 c.cm. tyrode; filtered Chamberland L1 bis	M.241	Died seventh day
		M.242	Killed, moribund, seventh day
2nd passage	Spleen of M.242 suspended in 5 c.cm. tyrode; unfiltered; culturally sterile	M.249	Died fifth day
		M.250	Killed, moribund, fifth day
3rd passage	Spleen of M.250 suspended in 5 c.cm. tyrode; unfiltered; culturally sterile	M.257	Killed, moribund, third day
		M.258	Ditto
4th passage	Spleens of M.257 and M.258 suspended in 10 c.cm. tyrode; unfiltered; culturally sterile	M.261	—
		M.262	Killed, very ill, fourth day
5th passage	Spleen of M.262 suspended in 5 c.cm. saline; spleen had been kept frozen from Dec. 23rd, 1930, to Feb. 10th, 1931; unfiltered; culturally sterile	M.275	Killed, very ill, fourth day
		M.276	Ditto
6th passage	Spleens of M.275 and M.276 suspended in 10 c.cm. saline; unfiltered	M.281	Killed, very ill, fourth day
		M.282	Died fourth day
7th passage	5 per cent. suspension of spleens; M.281 and M.282 in saline; unfiltered; culturally sterile	M.287	Ill, second day, still under observation
		M.288	Ditto

Post-mortem Material from the Nurse (Patient No. 3).—This consisted of lung, liver, and spleen obtained at the post-mortem examination carried out by Dr. Dorothy Russell. A 5 per cent. suspension in tyrode made from the pooled organs gave a copious growth of a variety of organisms accounted for by the presence of numerous secondary invaders in the lung. This suspension was filtered through a Chamberland L1 bis candle, and two mice, M. 253 and M. 254, were inoculated with the filtrate, each receiving 1 c.cm. intraperitoneally. Both mice became ill ten days after inoculation. One, M. 254, died on the twentieth day, the other recovered. The spleen of M. 254 was suspended in 5 c.cm. N/50 phosphate *p*H 7.6, and proved to be free from cultivable bacteria. With this suspension further mice were inoculated, with a fatal result, and the strain has now been carried to the tenth generation in mice. This strain rapidly increased in virulence, and from the fifth passage onwards killed mice in two days. This is a point of some interest, for the great majority of human strains of psittacosis virus never attain any high degree of virulence and are difficult to maintain.

Identification of the Strains of Virus by the Neutralization Test.—The death of the two mice inoculated with the blood of patient No. 2 was in all probability due to psittacosis virus, but positive passage was not obtained; so this point remains unsettled. The two strains of virus, B. 157 and "Bangor" obtained from the budgerigar and the organs of the nurse (patient No. 3), were almost certainly psittacosis virus; but in order to settle this point beyond dispute the effect of neutralization with a specific serum was determined. The serum employed was one produced in mice, M. 176, M. 177, and M. 178, with a strain of virus "G.B." isolated from budgerigars. Previous work (Bedson and Western, 1930) had shown that this serum neutralized not only the homologous strain, but a strain isolated from a parrot and one from a Java sparrow as well. Mixtures of serum and virus (spleen suspension in saline) were made in which the final concentration of serum was 1 in 100, and the concentrations of virus 1 in 1,000 and 1 in 10,000. These mixtures were allowed to stand at room temperature and then inoculated intradermally in the guinea-pig in a dose of 0.2 c.cm. At the same time titrations of the two viruses were made in the same animal. The results of this experiment are given in Table II. The signs denote the degree of reaction in the guinea-pig's skin.

The strain "Bangor" is obviously the stronger, and probably the end point was not reached, but the strain B. 157 would certainly have gone no further than the 1 in 10,000 dilution. The serum therefore neutralizes approximately 100 m.l.d. of each strain of virus, a finding in

keeping with previous titrations of this serum with other strains of psittacosis virus (Bedson and Western, 1930).[1] Thus proof is forthcoming that the two strains B. 157 and "Bangor" are immunologically identical, and that they are strains of psittacosis virus.

TABLE II

Virus	Treatment	Dilutions of Virus		
		1 in 100	1 in 1,000	1 in 10,000
B.157 ...	Virus in saline (titration)	+	±	∓
	Virus with immune serum M.176, M.177, and M.178	−	−	
Bangor	Virus in saline (titration)	++	+	±
	Virus with immune serum M.176, M.177, and M.178	∓	−	

CONCLUSIONS

Certain points arise out of the consideration of these cases. First, psittacosis is still liable to occur in this country, and should be borne in mind when one or more patients in a household are found to be suffering from an influenzal type of illness, with early signs in the lungs and perhaps some typhoid-like symptoms, such as epistaxis, abdominal distension, vomiting, constipation, or diarrhoea. Especially should such a diagnosis suggest itself if influenza is not prevalent in the surrounding neighbourhood at the time. Secondly, parrots are not the only birds which cause psittacosis in man. In the report of the Ministry of Health,[2] lovebirds, thrushes, and canaries, among other birds, are stated to have been the cause of human illness. It is apparently not certain how many types of birds suffer from diseases communicable to man, so the fact that a patient keeps birds should probably always arouse suspicion in doubtful cases of human illness. Certainly all bird keepers should take care always to wash their hands after attending to the birds, and especially before taking food. Thirdly, an unusual factor in the cases described in this article is that three generations of human psittacosis followed from the original sick budgerigar. Cosman, quoted in the Ministry's report, mentions a woman who caught psittacosis from a patient she nursed and afterwards infected her own child, but such a sequence is sufficiently unusual to be worth noting. Fourthly, the infection of a trained nurse in the course of her ordinary duties shows the care required in dealing with psittacosis, and incidentally, therefore, the necessity of early diagnosis of the disease. The nurses attending on these patients were warned to treat them like cases of typhoid, and this is probably all that can be done. So far as is known, this is the first instance in this country of the infection of a hospital nurse with psittacosis by her patient, and, even so, two out of the three nurses in attendance escaped the disease.

REFERENCES

[1] Bedson, S. P., and Western, G. T.: *Brit. Journ. Exper. Path.*, 1930, ii, 502.

[2] *Public Health and Medical Subjects*, No. 61, H.M. Stationery Office.

A CASE OF CEREBELLAR ABSCESS

BY

COURTENAY YORKE, M.D., F.R.C.S.

AURIST AND LARYNGOLOGIST TO THE LIVERPOOL STANLEY HOSPITAL

Cerebellar abscess is not a very rare condition, and recovery occurs after operation in a small percentage of cases. It is thought, however, that the following case may be of sufficient interest to report, on account of its dramatic course, and also because of important considerations of treatment that it raises.

CLINICAL HISTORY

On January 8th, 1931, Dr. A. Moscrop Walker of Wallasey asked me to see, in consultation, a girl, E. M. T., aged 13, who had acute middle-ear suppuration, with involvement of the mastoid. I was informed that the ear infection had set in suddenly at a boarding school a fortnight previously, and that there had been no antecedent ear trouble. The mastoid symptoms were only of a few days' duration. On examination I found the left ear discharging. There was also tenderness and swelling over the mastoid and above the ear. The pulse rate was 120, and the temperature 99.4° F. The patient was moved to the Wallasey Cottage Hospital, and an operation was performed the same night.

The entire mastoid was in a condition of acute osteitis, and there were numerous small collections of pus scattered throughout the mastoid cells. There was also pus in the mastoid antrum. The mastoid was widely opened, a large rubber tube being used for drainage.

The patient was more comfortable after the operation, and for the first five days appeared to be progressing satisfactorily. It was observed, however, that she was rather apathetic and disinclined for food, but no special misgiving was felt on that account. On January 14th she vomited twice and became more lethargic, but there was no headache, and the temperature and pulse were normal. Later in the day she refused food, and during the night passed rapidly into a semi-comatose condition, with occasional meningeal cries. On the following day the coma deepened and she responded to questions in monosyllables only, and after long delay. She lay curled up on the right side. Incontinence was present. The eyes were half open, fixed, and staring. The pupils were unequal, and the right one was a little irregular in outline. The right eye was very slightly deviated downwards and outwards. There was no nystagmus and no papilloedema. The mouth was open and the tongue dry and furred. The temperature was 97.5°, and the pulse rate 76.

The case appeared to be one of brain abscess, but whether in the cerebrum or cerebellum it was impossible to say. Under ether anaesthesia the temporo-sphenoidal lobe was explored, without pus being found. The more difficult exploration of the cerebellum was then commenced, but before the dura mater of the posterior fossa was exposed, the condition of the patient became so alarming that the operation had to be rapidly terminated.

On January 16th the coma was deeper and the patient could not be roused. Lumbar puncture was performed, and 10 c.cm. of clear cerebro-spinal fluid was withdrawn under pressure. It was decided to make a further attempt to explore the cerebellum. A general anaesthetic being out of the question, 1/6 of a grain of morphine was given hypodermically, and the operation of the previous day was resumed as the patient lay in bed. An area of dura mater, the size of a sixpence, in front of the lateral sinus, was at length exposed. The dura was incised and a knife inserted into the cerebellum to a depth of one inch in different directions, but without result. A Record syringe with a stout needle was then tried, and at a depth of one and a half inches one drachm of pus was withdrawn. A small rubber tube, the width of a slate pencil, was used for draining the brain abscess. It was stitched to the skin to prevent displacement.

The withdrawal of pus was immediately followed by deeper breathing. The coma lifted slowly and consciousness was not fully restored for two days. Incontinence continued for nearly a week. When the patient was sufficiently conscious to cooperate in the eye tests, the changes observed were as follows: (1) nystagmus, on movement of the eyes to the left; (2) conjugate deviation of both eyes to the right, in the normal resting position; (3) diplopia, the right eye was inclined downwards and outwards; (4) the eyes had a fixed, staring appearance, spontaneous movements were very limited, and the patient was unable to move the eyes together in different directions and hold them there. She did not experience any

vertigo, and there was no homolateral weakness of the limbs or muscular inco-ordination.

On January 18th the use of the tube was discontinued, the discharge having ceased. It was thought that the tube might be obstructing the sinus, and the latter was kept open by fine forceps during the next two days. Between January 20th and 29th, apart from a quick pulse and a moderate pyrexia, there were all the indications of excellent progress. The eye changes disappeared except the nystagmus, incontinence ceased, and the appetite was fully restored. The mind was clear and animated. On January 31st a sudden relapse occurred, and the patient became rapidly comatose again. The tube was reinserted, but for several days she remained in a moribund condition, and could not be induced to swallow more than an occasional teaspoonful of water. Hiccup was a prominent symptom at this stage.

After these critical days had passed rapid improvement set in. The pulse and temperature remained normal and progress was uninterrupted. The tube drained freely and was left in for a fortnight, until it could no longer be inserted.

During the whole of this period the tube was taken out for cleaning twice daily. It remained, however, stitched to the skin all the time, so that there was no uncertainty in reintroducing it to the proper depth. The girl was able to get up on February 19th and returned home on February 25th. Since then she has made unremitting progress. The nystagmus disappeared in a week or two. Now, at the end of April, she is in vigorous health and entirely free from any ill effects of her serious illness.

CONCLUSIONS

The conclusions to be drawn from this case are:

1. That brain abscess may develop insidiously, and that the first intimation may be incipient coma.

2. That a hypodermic syringe may discover pus when other means fail.

3. That drainage should be continued as long as possible; for this purpose a very small tube may be adequate, the pus escaping alongside it rather than through it.

THE TECHNIQUE OF SURGICAL DIATHERMY

DESCRIBING A NEW ELECTRODE

BY

ALBERT EIDINOW, M.B., B.S.

HONORARY PHYSICIAN TO THE LONDON LIGHT AND ELECTRIC CLINIC, VICTORIA, S.W.

The electric current employed in diathermy treatment and for surgical operations is of the nature of a high-frequency current. D'Arsonval (1895) showed that an alternating electric current, making and breaking about 15 times per second, would produce clonic contraction of isolated muscle preparations when tested *in vitro*. When the frequency of the current was increased 20 to 30 times per second tonic spasm was observed. The severity of the muscular contraction was augmented as the frequency was increased up to 300 cycles per second. Beyond this optimum the response of such muscle preparations to electrical stimuli diminished, and at about 10,000 times per second muscular spasm ceased and heat was developed. Electric currents which oscillate at 10,000 times per second are known as high-frequency currents; they have an entirely separate physiological action on tissues, as they cause heating, in contrast to lower frequency currents, which cause muscular contraction.

HIGH-FREQUENCY CURRENTS IN DIATHERMY

High-frequency electrical currents which are employed in diathermy or for surgical operations are obtained by means of coils and condensers. The main alternating current supply of 100 to 250 volts, and frequency of 50 to 60 cycles per second, is connected to the primary coil of a transformer; by this means a high voltage alternating current is developed in the secondary coil, which is connected to a series of condensers storing up the electrical charge until the voltage is sufficiently high to cause discharge through a spark-gap. The condensers are immediately recharged, and the process is repeated. With modern diathermy apparatus these oscillations are continuously maintained. The oscillating high-frequency current is taken up by a resonance coil of low resistance, and a second circuit is connected to the patient, which, when properly applied, produces the effects of diathermy. In place of the spark-gap, thermionic valves, three-electrode valves, or grid valves may be employed; these give a smoother current, which is perfectly continuous, but have the disadvantage that they are fragile and costly; further, they cannot carry a very heavy load of current. By such methods it is possible to obtain a high-frequency current of 3,000,000 cycles per second. Currents of electricity travel at a constant speed of 300,000 kilometres per second, but the nature of the wave-length transmitted varies with the frequency. Thus, a wave-length of 300 metres corresponds to a frequency of 1,000,000 cycles per second. The nature of the vibration of an oscillating current may be similar to the motion of a vibrating violin string, or it may be a series of undulating waves of uniform magnitude. The former are called damped oscillations, and the latter undamped oscillations. The thermionic valve apparatus emits a continuous flow of undamped oscillations; the apparatus containing spark-gaps produces damped oscillations. Each type of high-frequency current, differing in wave-length, causes variable reactions when applied to living tissue. The biological action of high-frequency current depends upon: (1) the intensity or amperage; (2) the tension or voltage; (3) the frequency of wave-length; (4) the nature of the oscillations; (5) the size of the electrodes; and (6) the electrical conduction of the living tissue. The amperage, voltage, and frequency directly control the intensity and dissipation of electrical energy, and therefore regulate the quantity of energy in terms of electricity or heat. As the amperage is increased the voltage and frequency diminishes; and, as a result, a heavier diffused current is generated, which is suitable for coagulation of tissues, and has greater power of penetration.

SURGICAL DIATHERMY

As a rule two electrodes are necessary for surgical diathermy. A large indifferent electrode is attached to a big area of the skin of the limbs or abdomen, and allows a wide path for the current to be generated to the body. This is discharged at the point of contact with the second active electrode. The size of the electrodes are directly proportional to the conduction of heat. Therefore a pin-point electrode will cause a discharge of electrical energy over a small area and result in rapid destruction of tissues by coagulation; whereas a larger plate electrode will have a generally diffused temperature effect over a wide area, which will not be sufficient to destroy tissue, but will only generate heat. The latter is the principle involved in therapeutic uses of diathermy. In order to obtain a maximum effect of deep penetration, a long wave-length current is applied by generating electricity at a high amperage, low voltage, and low frequency of damped oscillations. The maximum warmth the patient will tolerate is carried to the site of application by two large lead plates, copper foil or mesh, which are employed as the active electrodes.

Coagulation and Excision Technique

In surgical diathermy high-frequency currents are employed in two ways: (1) for the destruction of tissue by coagulation; and (2) for direct excision, similar to excision by a surgical knife. For coagulation, the active electrode is, as a rule, a small metal button or ball of varying shape and size, attached to an insulated handle and rubber-covered flex. The whole should be designed so that it can be completely sterilized. The extent and depth of coagulation is regulated by: (1) the intensity of the diathermy current; (2) the time the electrode is in contact with the tissues; and (3) the nature of the electrical conductivity of the tissues. For this purpose spark-gap diathermy apparatus is superior, as it permits a heavier load of current to be generated. This is desirable when coagulating large areas of diseased tissue. A current of relatively high amperage (1 to 20 amperes), low voltage and low frequency (under 1,000,000 cycles per second) is employed. Firm pressure should be applied, and the diseased tissue should be slowly coagulated. If too much current is employed, sparking, fulguration, and haemorrhage will result, which will rapidly cause a charred dry scab; as this is a poor conductor, it will inhibit the passage of further current; by consequence there will be only a superficial destruction of tissue, the diseased parts of which will remain within the depth of the lesion. In coagulation technique a "white reaction" should be obtained rather than a black eschar. After the coagulation operation is completed, it may at times be necessary to fulgurate the surface of a lesion, or the coagulated region may be completely excised by the cutting current and the excision technique. At first the active electrode should be firmly applied to the diseased tissue; the apparatus is then switched on with the indicator dial at the zero mark, and the current is gradually increased until "white coagulation" can be seen spreading around the margin of the electrode; the switch is then turned off and the electrode is moved, and a further area of diseased tissue is coagulated in a similar manner. If the active electrode is applied with too heavy a load of current passing through, only charring and sparking of the surface layers will result, and the deeper layers will not be heated. Similarly, sparking will occur if the active electrode is suddenly released before the apparatus is switched off. The depth of coagulation can be controlled by regulation of the intensity of the current, by the size of the active electrode, and by the time it is in contact with the tissues. Whenever it is practicable, coagulation should be continued until it can be seen that it has penetrated throughout the depth of the diseased tissue to the surface layer of the healthy tissue. Rapid coagulation, the use of small electrodes, or excessive current are to be avoided. The coagulation may be further controlled by the use of a thermo-couple embedded in a hollow needle, and in this way the temperature at any given region can be recorded by observation of the deflection of the needle of a sensitive galvanometer. Cutting tissues by means of the diathermy current involves a technique which is different from the methods of coagulation. A diathermy current of short wave-length, low amperage (100 to 200 milliamperes), higher voltage (4,000 to 8,000), and a frequency of 3,000,000 oscillations per second is usually generated. The active electrode is a fine needle or a wire loop. The object of such operations is to cut tissues cleanly with the minimum diffusion of coagulation beyond the limits of the incised area. In this way a bloodless incision is attempted, which, after suture, should heal by first intention. Many types of active cutting electrodes have been described. Many of them are too long and do not allow the depth of incision to be controlled. Others are too thick, and cause diffused coagulation.

AUTHOR'S CUTTING ELECTRODE

Recently I have designed a new type of active electrode (see Fig.) so that it could be used for accurate incision and dissection of tissue with the same safety as the surgeon's scalpel.

Diathermy knife. A, Quartz rod and capillary bore; B, Molybdenum wire; C, Screw for adjusting free end; D, Rubber tubing.

This electrode consists of a molybdenum wire which projects 2 mm. beyond a quartz rod. This quartz rod is about 9 inches long and is tapered and bent at its end; a capillary hole is bored throughout its whole length, and the molybdenum wire is threaded through the fine hole and projects for 1 to 2 mm.; this can be regulated and adjusted by a clamping screw. The molybdenum wire is connected to some copper flex, which is covered by rubber tubing throughout its whole length, and is attached to the outer wall of the terminal half-inch of the quartz rod. In this way the electrode is completely and safely insulated, and can be readily sterilized by boiling. Since fused quartz can withstand high temperature, rapid cooling, and is a good insulator, there is no danger that this electrode will be damaged or crack. The electrode can be used repeatedly, as it is rustless and is not softened or damaged by high temperature or oxidation. The length of the active end of this electrode is roughly 2 mm., and it is surrounded by the quartz capillary bored rod and therefore is well insulated.

By this means it is possible to cut and dissect tissues carefully and to operate on vascular areas, avoiding the important large blood vessels and nerves. The depth of the incision can always be controlled with the same care as with the scalpel. Pressure on the electrode should be avoided, for the incision is made by the electrical discharge from the point of the active electrode.

Operative Technique

Skin and muscle are readily incised, but fat and hard scar tissue are more difficult to deal with, as they are poor conductors of electricity. A heavier current is necessary, and at times the dissection of a mass of fat will prove difficult and laborious. The electrode should be used with a rapid light stroking movement; for if it is left in contact with tissues for long, diffuse coagulation will result. Bleeding is rarely excessive, except from the larger blood vessels, which should be clamped in the usual way, and later sealed off by applying the point of the electrode to the pressure forceps and changing over from the cutting to the coagulating diathermy current. It is advisable to ligature larger blood vessels by the usual methods. The control of the diathermy current during operations needs skill and knowledge. The current should be slowly regulated to obtain the correct cutting effect so that the coagulation does not spread further than 0.3 mm. The intensity must be regulated from time to time during the whole operation to compensate for the changes in conductivity of the various tissues—that is, skin, fatty tissue, muscle, and scar tissue. Excessive discharge of current or incorrect frequency will cause sparking, and result in diffused coagulation. Operation by the diathermy current produces a sterile and almost bloodless incision; the lymphatics are sealed off and the danger of dissemination of malignant cells or bacteria is diminished. The heat caused by the high-frequency current counteracts the surgical shock following exposure of wide areas of tissues, which are quite warm after diathermy operations.

Indications for Operation

This method of operation has been employed for:

1. The excision of areas of disease of the tongue and palate.
2. The excision of malignant disease of the breast.
3. Excision of areas of necrosis and ulceration following malignant disease.
4. Radium and *x*-ray necrosis and ulceration.
5. Excision of tissue in vascular areas, in which it is difficult to control haemorrhage by other means (bladder and brain).

The cases which have been selected for diathermy were those in which surgical operation by other means would be difficult owing to the danger of haemorrhage or the inability to dissect successfully the adherent masses of scar tissue. The operation for excision of the breast by diathermy has invariably healed by first intention. At times it has been possible to excise a mass of adherent malignant glands, even when in close proximity to the axillary vessels. Foul and sloughing malignant ulcers have been excised, and the base has been coagulated, leaving clean granulating surfaces with consequent relief of pain and discomfort. It has been possible to heal cases of *x*-ray ulcerations and radium burns in the same way, such treatment giving immediate relief of the pain associated with these lesions. After diathermy operations a solution of flavine in liquid paraffin applied once every day is a suitable dressing. On the seventh to tenth day after operation a slough separates, leaving a clean granulating surface. Healing at this stage may be accelerated by means of ultra-violet irradiation. In successful cases wide areas may be excised or destroyed by the diathermy current, and will finally heal completely without the necessity of skin graft. Diathermy operations of the tongue, tonsil, and palate cause more severe reaction; oedema is marked, and secondary haemorrhage may occur at the stage of separation of the slough. It is more difficult to obtain healing by first intention. I have attempted to dissect tonsils by means of the cutting diathermy current with the help of Mr. E. Steeler. In all, twenty cases were done. We obtained good results in eighteen cases, but in two cases secondary haemorrhage occurred nine days after operation. The destruction of enlarged tonsils by the technique of coagulation has given favourable results in adult patients. Surgical diathermy is a very useful agent for the removal and destruction of naevi, moles, and warts. The operation is rapid and bloodless, it can be performed without anaesthesia, and results in a successful healing with no unpleasant disfigurement or scar.

I am indebted to Mr. Stanford Cade and Mr. Douglas Harmer for their valuable help in giving me the opportunity to assist them at operations.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

SUICIDAL CUT THROAT: RECOVERY

The following case of a suicidal cut throat recovering, after very severe injuries, seems of sufficient interest to publish.

On January 19th, 1931, in answer to an urgent call to the receiving ward at the West Middlesex Hospital, I found a well-nourished man, aged 30, sitting fully dressed, with a loose scarf bandage draped around his neck, and his head slightly flexed and rotated to the left. On examination I found the patient almost aphonic, with a circular cut in the neck 5 inches in length, extending from about 1 inch to the right of the mid-line, to 4 inches to the left of the mid-line, at the level of the upper border of the thyroid cartilage. There was comparatively little bleeding, although the cut extended through all soft tissues, including the infrahyoid group of muscles, the thyrohyoid membrane, the tip of the epiglottis, and the lateral walls of the pharynx, back to the vertebrae. There was abundant discharge of mucus. Temperature 97°, pulse 130, respirations 24.

I learned that this was a suicidal cut, inflicted with an ordinary razor in a moment of financial anxiety. I ordered a hypodermic injection of morphine 1/4 grain to be given statim. After consultation with the medical superintendent, Dr. J. B. Cook, we decided against any attempt at surgical repair. Warm saline dressings were applied to the neck, and rectal glucose and coffee salines were given six-hourly; also a hypodermic injection of adrenaline co. 1 in 1,000, with atrop. sulph. 1/200 grain, and strychnine hydrochlor. 1/100 grain.

On January 22nd the patient started taking sips of water and diluted milk by mouth; the rectal salines were gradually discontinued, and by the 25th he was taking an ordinary fluid diet and the neck wound was healing up rapidly. On February 17th the patient started getting up; and, except for an attack of influenza which developed on the 22nd, he made an uninterrupted recovery. He was bright, and quite normal mentally, during the whole of his stay in hospital, and was discharged cured on March 19th.

I have to thank the medical superintendent for allowing me to publish these notes.

MARJORY W. WARREN, M.R.C.S., L.R.C.P.,
Assistant Medical Officer, West Middlesex Hospital, Isleworth.

TREATMENT OF PERNICIOUS ANAEMIA

The following brief history of a case of pernicious anaemia, which I have had under my observation for nearly three years, and now appears to be cured, may be of some interest from the point of view of treatment.

I first saw the patient, a man aged 54, on July 24th, 1928. He was then complaining of shortness of breath and weakness. His heart was dilated, auscultation revealing a mitral systolic murmur, and there was some oedema of both legs; he was very pale, and at first I thought of aortic disease. He gave a history of not feeling well for a year, and of having weakness in the right arm and leg. The knee-jerk on the right side was very feeble, and the hand-grip on the same side was weak. Examination of a blood film showed a typical picture of pernicious anaemia, with the exception that there were very few nucleated red cells. I was at the time unable to make a blood count, but the haemoglobin was 60 per cent. There were some petechiae scattered over the chest and back.

I prescribed half a pound of raw liver daily, and 5 minims of liquor arsenicalis and 10 grains of ferri et ammon. cit. to be taken three times a day. The patient responded fairly quickly, so that on September 11th the haemoglobin was 80 per cent., and on October 6th 90 per cent. The dose of liquor arsenicalis had been increased to 8 minims. He ceased attending in the early part of October.

He again appeared in June, 1929. His condition had deteriorated, and his haemoglobin was only 60 per cent. He had acquired a distaste for raw liver, and had not been taking it very regularly, I think. I put him on liver extract, in full doses, and the arsenic mixture as before. On July 20th a blood count showed 1,800,000 red cells per c.mm., and the haemoglobin was 75 per cent. Instead of the arsenic mixture dilute hydrochloric acid was given in 30-minim doses three times a day, with tincture of nux vomica and gentian. On October 17th the red cell count was 1,250,000 and the haemoglobin 60 per cent. On October 21st the haemoglobin had gone up to 80 per cent. He was now taking raw liver as much as possible, and the extract only at intervals.

He did not attend again until April 19th, 1930. His condition was then so grave that I suggested treatment in a hospital, with a view to transfusion of blood, but he would not agree to this. He was extremely weak and dyspnoeic. His right leg had again become weak. A blood count showed that the red cells were down to 950,000 per c.mm., and the haemoglobin was 50 per cent. Throughout his illness he had an extremely high colour index. His appetite was very poor, and he found it impossible to take raw liver on account of the nausea and loathing it produced. He had been receiving the equivalent of 6 ounces of liver, as liver extract, daily. I now gave him 1 drachm of glycerin of pepsin, with 30 minims of dilute hydrochloric acid (later increased to 40 minims), and 10 minims of tincture of nux vomica, three

times a day after meals. His nausea quickly disappeared, and he was then able to take the juice of 8 ounces of raw liver daily. The liver was cut up into very small pieces and all the juice expressed. From this moment he never looked backwards.

On April 26th the red cells were 1,465,650 per c.mm., and the haemoglobin was 60 per cent. On May 3rd the red cells were 1,856,250, and the haemoglobin was 70 per cent. On May 20th the red cells were 3,416,000, and the haemoglobin was 70 per cent. During this period there was a considerable increase of nucleated red cells. On July 12th the red cells had increased to 4,166,250, and haemoglobin to 90 per cent.; on July 19th the red cells were 4,875,000, and on August 1st the red cells numbered 5,373,250, and haemoglobin was 100 per cent. He is now taking 4 ounces of raw liver juice daily as a prophylactic.

The interesting point is that, his irregular attendance apart, the patient's improvement was slow until, in addition to his raw liver, he took glycerin of pepsin and acid mixture. He improved certainly with arsenic, and to a lesser degree with dilute hydrochloric acid, but it was not until I gave him the glycerin of pepsin that a really striking improvement occurred. A rise in the red cell count from 950,000 to 5,373,250 in less than four months is certainly remarkable. The grip of his right hand is now quite strong, and there is only slight weakness in his right leg. In fact, the man is hardly recognizable as the wreck I saw a year ago.

In future I shall certainly put any more patients with pernicious anaemia on to glycerin of pepsin or some other form of stomach extract straight away, in addition to the raw liver juice. Liver extract did not seem in this case to be nearly as effective as the fresh raw product.

H. C. KEATES, M.D. B.S.Lond.,
Lieutenant-Colonel I.M.S. (ret.).

London, S.W.

Reports of Societies

THE OBSTETRICAL PROBLEM OF CONTRACTED PELVIS

At the meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on May 15th, under the presidency of Sir EWEN MACLEAN, a discussion was held on the relative value of the induction of premature labour, test labour, and Caesarean section in minor degrees of contracted pelvis.

Mr. R. ALAN BREWS said that the practice at the London Hospital in all cases of contracted pelvis was either elective Caesarean section or test labour. In the three years covered by his statistics induced premature labour for contracted pelvis had never been done. The cases treated were those in which there was true clinical disproportion—a head which could not be engaged and which would not go into the pelvis without holding. He had divided them into two groups—namely, those in which the diagonal conjugate was above 4¼ inches, and those in which it was between 3½ and 4¼ inches. The total number of deliveries in the hospital had been 5,284 in three years, and the number of cases in which test labour or Caesarean section had been employed in the treatment of minor degrees of contracted pelvis was only 45. The number of spontaneous deliveries had been 29, of assisted deliveries 3, and of Caesarean section following test labour 13. No maternal mortality had resulted, and morbidity had occurred in only two cases. The foetal and neo-natal mortality had been 4.8 per cent. The cases treated by Caesarean section had been attended by no foetal mortality, as well as by no maternal mortality or morbidity. The advantages of test labour were that the uterus and the pelvis were given a chance of showing what they could do, and that all the infants were full term. Uterine inertia, occipito-posterior positions, and early rupture of the membranes were difficulties that had to be dealt with. Pelvic measurements were of great value when dealing with test labour; in the vast majority of cases with large pelvic measurements the child came through perfectly easily, and there was a normal puerperium.

Mr. G. F. GIBBERD considered that a satisfactory definition of moderately contracted pelvis was impossible. The standard adopted at Guy's was "the degree of disproportion where intervention seems necessary." The total deliveries in three years had been 5,045, and 186 patients had been treated for contracted pelvis; of these, 133 had been unselected, and in 53 some difficulty had been anticipated before admission. Inductions had been performed in 83 cases, trial labour followed by Caesarean section in 42, and forceps delivery in 61. His figures did not take into account the cases in which trial labour ended in spontaneous delivery. Although forceps delivery figured largely in the results, his hospital did not advocate it as a method of treatment. It had been used in the inevitable rubbish heap of cases in which other treatment might have been tried had there been earlier opportunity; and also in cases in which induction of premature labour had wrongly been considered unnecessary. The infant mortality attending forceps delivery (18 per cent.) was therefore not so much a condemnation of forceps delivery as an indication of how far other methods fell short of the ideal. In his view there was room both for trial labour and for induction of premature labour. By the use of both methods, and by forceps when some degree of disproportion held up the second stage of labour, he felt that better results were forthcoming than by rigid adherence to one method in all cases.

Dr. J. W. A. HUNTER brought forward figures for St. Mary's Hospitals, Manchester. He had made a careful examination of the records of 850 cases treated during the past five years for a minor degree of contraction, choosing only those cases which had been delivered in hospital after attending the ante-natal clinic. Figures for primigravidae and multiparae were presented separately. He said that a large proportion of the cases had been treated by induction—77 per cent. in the one group and 54 per cent. in the other. The average time of induction of labour had been the thirty-eighth week. Medicinal induction—namely, castor oil, quinine, and pituitrin, or in a few cases castor oil and quinine only, or ovarian extract only—had been successful in 68 per cent. of cases. The resulting delivery in 82 per cent. of cases had been by natural forces. There had been one maternal death out of 277 inductions of premature labour in the primiparae, and none out of 270 inductions among the multiparae. The cases delivered by Caesarean section in the first group had numbered 37, with no maternal deaths, and in the second group 164, with 4 deaths. The high proportion of Caesarean sections among the multiparae was because many of the women had been known to have had stillbirths previously. As to trial labour, there had been 23 cases in the first group, and 41 in the second. Induction with delivery by Caesarean section had been practised in 16 cases, with 2 maternal deaths; and trial labour with delivery by Caesarean section in 32 cases, also with 2 maternal deaths. One significant point was the high foetal or infant mortality resulting from trial labour (14.3 per cent. in the primiparae, and 21.9 per cent. in the multiparae). He put forward a plea for the method of induction of premature labour. Out of the 275 cases in which induction of premature labour had been practised in multiparae, just over half the previous confinements of these women had resulted in stillbirths, or the infants had died shortly after delivery. The way in which infant welfare centres now looked after premature children, practically not allowing them to die, could be set against the disadvantage of the method from

the point of view of the infant. Caesarean section showed the highest maternal mortality and the lowest foetal mortality, though the latter was not appreciably lower than that in the induction of premature labour. He protested against the ever-increasing practice of Caesarean section, which was insidiously assuming such proportions as to threaten to become a national menace. In the series of cases from his own hospitals there had been eight deaths following Caesarean section out of 249 cases in which it had been practised for contracted pelvis (diagonal conjugate, 4 to 4½ inches). Of the eight deaths, three had been due to peritonitis, and the others to tuberculous pneumonia, paralytic ileus, post-partum haemorrhage, faecal fistula, and pulmonary embolism.

Dr. A. MORRIS-JONES sent a communication from Queen Charlotte's Hospital, which was read. Out of 10,646 deliveries in five years, 1,285 were for contracted pelvis, of which 814 were delivered by induction, 327 by forceps, and 144 by Caesarean section. All the inductions took place between the thirty-sixth and thirty-ninth weeks; 475 cases were successfully induced by mechanical contrivances, and 339 by drugs. Of the 144 cases in which Caesarean section was done for disproportion, 7 of the women had previously undergone induction in the nature of trial labour. Two of the Caesarean section patients died, of septicaemia in the one case, and post-partum haemorrhage in the other; and 38 cases showed some degree of morbidity. The foetal mortality rate following Caesarean section was 4.1 per cent. The number of maternal deaths following induction was 7, and 3 followed forceps delivery; 79 cases in the former category and 71 in the latter showed morbidity. The foetal mortality was 8.09 per cent. in the case of straightforward induction, and 30 per cent. in the case of induction with forceps. He considered the figures justified the rather high proportion of cases in which induction was decided upon.

Dr. GLADYS HILL, for the Royal Free Hospital, said that the standard of contraction there laid down was that the head could just enter the pelvis at the thirty-eighth week. Out of 46 inductions in primiparae and 15 in multiparae, 48 had ended in spontaneous delivery, and 13 had forceps. There had been no maternal mortality; the maternal morbidity had been 9.8 per cent., and the infant mortality 14.7 per cent. With the 17 primiparae and 5 multiparae submitted to Caesarean section after test labour there had been no maternal deaths; the maternal morbidity had been 22.7 per cent., and the infant mortality 4.5 per cent. Taking the whole of the cases, the stillbirth rate (9.81 per cent.) was about three times the foetal death rate for the whole of the deliveries at the hospital (9,468) during the period covered. The average weight of the infant in the cases induced had been about one pound less than the average weight in the cases in which Caesarean section had been performed. From the maternal point of view, the chief favourable factor in Caesarean section was the avoidance of a labour definitely prolonged above the average; but against this was the higher morbidity rate, the risk attending an abdominal operation, and the presence of a scar in the uterus, though such a scar had been found not to preclude subsequent delivery by the natural route. A further advantage was that the infants were all alive, all at term, and with no birth injuries. She added that it was a matter of observation that as one became more experienced in ante-natal work the proportion of cases in which intervention was regarded as necessary was diminished.

Dr. J. GARDINER WIGLEY gave figures for St. Thomas's. Out of a total of 2,572 deliveries the cases in which a moderate degree of contracted pelvis called for treatment numbered 137. The maternal mortality rate had been 7 per cent., the morbidity rate 13.1 per cent., and the infant mortality rate 10.9 per cent. Most of the cases (92) had been treated by induction, and 23 by induction and forceps.

Dr. A. J. WRIGLEY, for the General Lying-in Hospital, York Road, said that the total number of deliveries from 1925 to 1930 was 6,012, of which 184 had a slight degree of contraction. No emergency cases were included in this series. Of these cases 47 had spontaneous delivery, 17 had forceps, 103 had induction (with spontaneous delivery in 94, and with forceps in 9), and there had been 17 Caesarean sections. Only one maternal death had occurred in the whole series; this was a woman in her fourth pregnancy, who had been induced, with spontaneous delivery. The morbidity had been 4.3 per cent., and the total infant mortality 10.8 per cent.

Sir EWEN MACLEAN briefly reviewed the reports brought forward by the hospitals, and expressed a wish that some of the speakers had illustrated a little their difficulties with regard to the measurement of the diagonal conjugate. Presumably the difficulties were not the same in all cases, but confidence in perimetry generally was to be attained only after considerable experience and after testing one's forecasts by the after-history of the cases. He thought there would be general response to the protest of one speaker against the abuse of Caesarean section. Apparently at Guy's that operation was performed only after trial labour.

Mr. ALECK W. BOURNE said that the first thing that struck him in the discussion was the uncertainty as to the type of pelvis about which they were talking. He felt that a number of cases of induction, supposedly for minor degrees of pelvic contraction, were really not done on account of such contraction. They were not troubled in conducting labour nearly so much by a small degree of contracted pelvis as by the unflexed head. Therefore, although he came from a hospital which had had opprobrium thrown upon it for its wide practice of induction and Caesarean section, he found himself inducing labour to a very much less extent. By inducing labour two or three weeks before term very little was saved in respect to the size of the head when subjected to moulding; and the question was whether, if the head was to be moulded, it was better that it should be the premature head at thirty-seven weeks or the more mature head at forty weeks. He disliked trial labour, and never did it; it was a confession of failure of judgement. Trial labour followed by Caesarean section was bad for the mother and the infant, and the performance of Caesarean section after the introduction of bougies was even less defensible.

Mr. VICTOR LACK said that at the London Hospital during the last four years they had given up induction for a minor degree of disproportion, and had been quite well satisfied with the results. To say that trial labour meant that a case had not been investigated was hardly justifiable. He agreed with Mr. Bourne that to start a trial labour was a very serious undertaking, but he did not consider that, properly conducted, it was to be deprecated.

Dr. J. S. FAIRBAIRN thought it clearly established that there were a great many unnecessary inductions, just as there were a great many unnecessary Caesarean sections. But induction had the advantage over Caesarean section in that something could be learned from it about the labour, whereas nothing at all was to be learned from Caesarean section. He was sure that trial labour could be worked successfully, but it was a measure which called for wide experience, and also hospital equipment. Hence it had a limited application in the general run of deliveries.

Dr. J. M. WYATT thought that teaching hospitals should teach their students a method which it would be possible for them to apply in outlying districts. Induction of labour was not very difficult, and the results both to

mother and infant were good provided it was done at the right time. Induction followed by forceps had a high foetal mortality, but induction not followed by forceps had not.

Dr. R. KELSON FORD pointed out the importance, in some parts of the country, of the industrial efficiency of the mother. In an industrial community it had been his experience that the people were very much against an operation. They would rather lose the baby than have an operation which meant a longer time in bed and away from employment. That was, prima facie, an argument in favour of induction, other things being equal.

Mr. L. C. RIVETT pointed out the curious disparity in the figures presented. The London Hospital, out of 5,284 deliveries in three years, had had only 45 deliveries for contracted pelvis, whereas Queen Charlotte's, with 10,646 deliveries had had 1,285. It was difficult to decide what was meant by a minor degree of contraction. The diagonal conjugate was of very little value. It all depended on the size of the foetal head and the amount of flexion.

Mr. D. W. ROY had been surprised to find how well the moderate use of induction came out, within the limitations of the statistics. He thought it played a most useful part in treating moderate degrees of contracted pelvis, and he was pleased that Dr. Hunter had taken the view that the children of these inductions had a much higher survival rate than many had suggested. The danger of Caesarean section increased in geometrical progression with the number of times it was performed on the patient. Test labour seemed to be useful in cases which, owing to some mischance, had passed the point at which induction might usefully have been done, and yet in which Caesarean section forthwith did not seem justified.

Dr. G. W. THEOBALD pointed out that St. Thomas's appeared to be the only hospital where they tried to estimate whether the head would go through by putting the patient under an anaesthetic. Dr. W. H. F. OXLEY said that ante-natal deaths were not a sufficient criterion for estimating the value of any method; a record should be kept of infants during the first year of life. Dr. FRANCES IVENS-KNOWLES agreed that the induction of premature labour was not an operation to be undertaken without very careful consideration. She had seen various patients who had not done at all well because they had not been examined for cervical discharge. If induction of labour became a routine method in general practice that danger would be encountered a good deal.

Dr. BREWS, in reply, stressed the importance of pelvic measurements, and also urged that students should be taught that there were cases of labour which ought not to be delivered in general practice. Dr. HUNTER remarked that in Manchester there was possibly a higher proportion of true pelvic contractions than in London.

THE INJECTION TREATMENT OF PILES

At the meeting of the Subsection of Proctology of the Royal Society of Medicine on May 13th, with Mr. L. E. C. NORBURY in the chair, a discussion took place on the injection treatment of piles.

Mr. W. S. PERRIN said that he had used for the last eight or nine years, with considerable success, the fluid recommended originally, he thought, by Mr. Swinford Edwards, consisting of one part carbolic acid, two parts glycerin, and two parts distilled water. He customarily injected two piles at one sitting, as high up as possible, putting in the needle about a quarter of an inch. He never injected more than 10 minims of this strong solution, often 5 minims or less. No other injection into the same pile should be made within less than a fortnight. In a bad case six injections might be required. What was known as the primary type of pile, which did little except bleed, was the kind most suitable for injection treatment. The secondary type of pile, which protruded only on defaecation, and replaced itself or could be replaced by the paper, might also often be injected with hope of success, but another type, in which the pile protruded at any time, was not suitable. Among 800 cases at the London Hospital which had been treated by injection he knew of no complications, and the same was true of cases he had seen in private practice. Occasionally the patient had a certain amount of pain following injection; this he thought to be due, as a rule, to the injection of too much solution, but it occurred also after quite small injections.

Mr. W. B. GABRIEL said that simple uncomplicated internal piles which were soft and reducible could be readily cured by a few high carbolic injections. Fibrous piles or polypi, enormous prolapsing piles, or piles associated with anal fissures or fistulae, were not amenable to injection, and here operative treatment was required. He used 5 per cent. phenol in almond oil, usually 3 c.cm. A week later a firm leathery induration was felt in the quadrant injected, often extending up as high as the fingers could reach. A large proportion of cases needed only three or four injections, and many in which the trouble arose from a single pile were put right by one treatment. He considered the oily solution a marked advance in efficiency and safety. Out of 800 new cases of internal haemorrhoids seen at St. Mark's during the last two years, about 75 per cent. had been treated by the injection method. The majority had remained under observation until they were free from symptoms, and examination showed a satisfactory sclerosis. The method of injection had meant a saving of hospital beds and of the patient's time. He gave a table showing the reduction in the number of operations for uncomplicated piles at St. Mark's during the last two years owing to the increased application of injection treatment in the out-patient department. Injections produced fewer dramatic results in women than in men, and there was a plethoric type of female, seen in the period of child-bearing, in which piles should be treated only on palliative lines.

Mr. E. T. C. MILLIGAN said that he now used for injection 5 per cent. solution of phenol in almond oil. For three years he had tried 20 per cent. injection of phenol in glycerin as a routine method, but in certain cases severe reactions occurred. The 5 per cent. solution, using 3 c.cm., resulted in comparative freedom from complications. His syringe was an eccentric 10 c.cm. Record with encircling markings of 3 c.cm. amounts, and he used a long injection needle. It was only fair to point out that secondary haemorrhage and pain was as frequent and severe after big injections as after operation, and much more difficult to explain to the patient. The site of injection was also important; if too low, discomfort and pain would arise. The knee-chest position was desirable, and it was important that the rectum should be distended with air. Another point to bear in mind in comparing methods was that if injection treatment had been improved, so had the technique of operative removal, and in competent hands operation was as free from complication as were injections.

Dr. CUTHBERT DUKES discussed, with the aid of drawings, the anatomy of the rectum and anal canal, and the relationship of the different structures, and Mr. C. I. N. MORGAN added some further remarks on the anatomy, pointing out that the internal haemorrhoidal plexus, which was fairly constant in position, extended upwards above the level of the internal sphincter.

Sir CHARLES GORDON-WATSON stated that for his own part, in spite of having urged his colleagues to use the new injection of 5 per cent. phenol in almond oil, he

himself had not used it, finding that he had got on very well with the old carbolic-glycerin solution, which he used at a strength of 15 per cent. carbolic, neither more nor less, and he very seldom found that he required more than three injections to get rid of a pile. In pre-war days, when he had an out-patient department, he never favoured injections, having been deterred by seeing one case in which very serious complications had arisen. Since then, however, reassured by the experience of his colleagues, he had used injection treatment, but he had not had an opportunity of carrying it out on large numbers of out-patients. He had to admit that there were complications with injections, and he was amazed at the London Hospital record of 800 cases without, as far as was known, any complication. Sometimes too much fluid was given, and the patient suffered pain, and there was a little sloughing. A number of patients appeared to have pain twenty-four hours after injection. He had not seen any serious haemorrhage or sepsis.

Mr. A. S. MORLEY expressed surprise at the unanimous approval which this method was now receiving from proctologists. He had been working on the subject since the early days of the war, when there was great hostility to injection treatment of all sorts. He first employed a 20 per cent. carbolic solution, and he got very good results, but occasionally there were complications. Haemorrhage occurred, perhaps, once in 200 cases, but it was sufficient to make one hesitate. Then he heard that in America 5 per cent. carbolic was given in a certain vegetable oil (he believed copra seed oil or something similar), and he adopted this method, using almond oil. The oil had to be vegetable, not mineral, because mineral oil was not absorbed quickly enough. With regard to the instrument, he had tried various slotted speculums, with no great satisfaction, and he now used Kelly's speculum, the end of which was bevelled off so that one side was longer than the other. The longer side held back the part of the rectum on which one was not working, and kept it out of the way. His speculum had a Z-shaped handle, so that it was well out of the way of the buttocks. He used an eccentric Record syringe, with a special needle, bent at an angle at the upper end, because that kept the point of the instrument under the eye, and the rest of the instrument and one's hand did not get in the way. He preferred the knee-elbow position, and used it wherever possible in men ; in women, the left lateral position was his choice. The site of injection should be as high as any loose mucous membrane could be detected. As to complications, pain occasionally occurred, which meant that there had been too much or too frequent injection. Severe pain was experienced perhaps in one case out of 500 ; it was due to some error of technique. He disagreed with previous speakers as to choice of case. In his view there was no case of uncomplicated haemorrhoids which was unsuitable for treatment by injection, and the old-fashioned operations of ligature and cautery ought almost to be relegated to the dust heap. Fistulae, the presence of fibroid polypi on stalks, and gangrene were the only contraindications. He had treated many patients in whom prolapse was reduced with great difficulty, and the piles came down as quickly as they were released from pressure, but even here prompt injection kept them up, and they did not come down again. He had written to some 300 patients who had been treated three or four years previously, and found that 83.4 per cent. were free from recurrence. These patients had been treated by means of the 20 per cent. carbolic solution ; he had not the figures as yet showing the results of treatment by the later method. Another point was that patients did not object to a second series of injections, whereas they did object to a second operation.

Mr. KENNEDY MURPHY said that only simple uncomplicated piles were suitable for injection—that is, haemorrhoids in which the veins were not very much sclerosed, and in which there was very little fibrous tissue. Carbolic acid and glycerin could not be expected to get rid of fibrous tissue ; on the contrary, this agent increased it. The cure by injection would depend on the closeness of approximation to the most satisfactory operative procedure—namely, the ligature operation. Mr. ASLETT BALDWIN had been using urea and quinine injections and found them very satisfactory. Mr. TURNER WARWICK had found phenol and almond oil no more satisfactory than 20 per cent. carbolic. Glycerin solutions should be used both on the pedicle and the pile. The PRESIDENT pointed out that in some cases a combination of methods gave a better result than any single plan of injection alone. The possibility of pain after injection was important to remember ; there need be no pain after ordinary surgical operation for piles.

CALCIUM THERAPY

At a meeting of the Harveian Society, held at Paddington Town Hall on May 14th, with Sir THOMAS HORDER in the chair, Dr. DONALD HUNTER opened a discussion on calcium therapy.

He said that a survey of the results of calcium administration in disease showed that as a therapeutic agent calcium had proved disappointing. The constant supply of calcium in the food and the large available store in the bones made it unlikely that the regulating mechanism ever lacked calcium for distribution throughout the body. He demonstrated by lantern slides the effects of total thyro-parathyroidectomy in dogs ; tetany was relieved by injections of parathyroid extract. He showed how the prolonged use of such injections in man raised the serum calcium and increased calcium output in the urine. This calcium came from the bones. Hyperparathyroidism was a disease of bones ; and the first operation for hyperfunction of a parathyroid tumour had been performed by Mandl of Vienna in 1925. Since that time thirty-two cases had been recorded, including four of the speaker's own operated upon by Mr. Walton. In this disease (generalized osteitis fibrosa) the serum calcium was high and the calcium output from the urine might be six times the normal. Usually no lump was palpable in the neck, but on exploration a parathyroid tumour was found. After this was removed, pains in the bones ceased, the calcium metabolism was promptly restored to normal, the *x*-ray shadows of the bones became more dense, and the patient was often saved from being a cripple. In focal osteitis fibrosa evidence of hyperparathyroidism was lacking, and operation on the neck was entirely unjustified, even if many bones were affected. Whereas in hyperthyroidism bones lost calcium by a process of excessive osteoclastic resorption, the bone changes in osteomalacia and rickets were due to a failure of calcification of osteoid tissue. This had nothing to do with the parathyroid, but was due to the lack of the powerful calcifying substance vitamin D. The problem of osteomalacia in China and India was rendered difficult by religious and other customs, but the main factors in its etiology were inadequate diet and lack of sunlight. The tetany of osteomalacia and rickets should be treated by large doses of calcium lactate. In emergency, intramuscular calcium gluconate or intravenous calcium chloride should be given. Vitamin D must always be administered.

Mr. A. J. WALTON said that recent work on calcium metabolism had made it possible for a physician to say dogmatically that a parathyroid tumour was present. The parathyroids varied very widely in position. The superior pair, in his experience, were always placed in front of the thyroid fascia, between it and the thyroid

capsule. The inferior pair showed an important variation which determined the path of spread of a tumour; they might be below the inferior thyroid artery and in front of the fascia, or above the artery and deep to the fascia. Occasionally one or more parathyoids might be in the substance of the thyroid gland, and therefore certain to be removed in partial thyroidectomy. A small adenoma of the thyroid might be mistaken for a parathyroid and the true tumour overlooked. The operation of parathyroidectomy required light ether anaesthesia and a wide exposure, for the tumour might be at some distance from its expected site. He therefore made a wide collar incision, retracted the sterno-mastoids, and divided the pretracheal muscles at the level of the isthmus. The lateral lobes of the thyroid were rolled inwards in turn, and thus a tumour in the normal site of a parathyroid could be discovered at once. So far he had not had a case of tumour of the upper parathyroid bodies, and the real difficulties had arisen from the relation of the inferior pair to the thyroid fascia. If the body lay between the fascia and the capsule of the thyroid, the tumour would enlarge downwards along the thyroid veins and in front of the carotid artery, like a retrosternal goitre. If the parathyroid was behind the thyroid fascia, no sign of the tumour was perceptible from in front, and nothing could be felt by passing a finger into the thorax on either side of the trachea. The tumour was then found as soon as a small incision was made through the fascia above the inferior thyroid artery. In one case a small mass in the lower part of the right lobe of the thyroid had been removed. Professor Turnbull had reported that it was an adenoma, and not a parathyroid tumour; but Dr. Hunter had been convinced from his biochemical studies that a parathyroid tumour was present, and a second operation had therefore been undertaken. A small typical parathyroid tumour had been found behind the oesophagus and removed; a finger had been inserted into the wide space thus revealed, and a large kidney-coloured tumour, the size of a plum, found immediately in front of the second and third dorsal vertebrae. This case had shown that an enlargement of the inferior thyroid body, when situated behind the thyroid fascia, passed down behind the oesophagus into the thorax, quite out of sight. The surgical after-treatment was the same as for thyroid adenoma, but careful attention had to be given to the blood calcium estimation, and tetany must be prevented by the administration of calcium and parathormone.

Professor TOM HARE mentioned the condition of aphosphoria, which was characterized by a deficiency of inorganic salts. He was not satisfied that rickets in animals was always due to a lack of vitamin D, as a certain number of cases would not respond to vitamin treatment. He thought there might be some hereditary factor behind this failure; from the histological point of view the cases might be examples of osteitis fibrosa and not of rickets; but he had never seen a parathyroid tumour in an animal.

Dr. HUNTER, in reply to a question from the Chairman, said that calcium was beneficial in some cases of urticaria, and should not be withheld merely because its use was empirical. Oedema had been removed by parathyroid hormone. In cases of poisoning by carbon tetrachloride, necrosis of the liver occurred only if the blood calcium was low; calcium probably exerted some protective action on the liver. In eclampsia, intravenous glucose was useless without the addition of calcium. Calcium also relieved various colics, including lead colic, ureteric colic, and other cases where smooth muscle was involved. Biochemistry, he concluded, might be just as helpful as histology in the differential diagnosis of diseases of bone.

Reviews

A SYSTEM OF BACTERIOLOGY

In previous issues of this *Journal* six volumes of the *System of Bacteriology*[1] have been reviewed. Of the three remaining, volume vi is devoted to the subject of immunity, and may therefore be said to be one of the most important of the series. It opens with a chapter by H. B. Maitland on bacteria in relation to disease, which is disappointing in some respects. We should have thought that more might have been made of the question of the origin of pathogenic species—the evolution of disease—though admittedly the paucity of facts makes this question highly speculative. The conception of bacteria in the intestinal contents as living *in* the host is, of course, incorrect, though a mistake which is commonly made. Natural immunity is not a theme which lends itself to brief exposition, but J. C. G. Ledingham in Chapter II has given a most excellent account of the subject. We are still very ignorant on this question, but the difficulties with which the problems are hedged round are perhaps some excuse for lack of knowledge. A feature of this chapter is the section devoted to Besredka's recent investigations of local immunity, which are dealt with in an impartial and critical manner. The next chapter on the production of active immunity to bacterial and virus infections, contributed by J. C. G. Ledingham and H. Schütze, is also very good. It would appear that as a general rule vaccines of living bacteria produce a more solid immunity than killed vaccines, and in this respect bacteria and filterable viruses show little difference, a point not commonly realized. The bearing of recently acquired knowledge of antigenic structure on the problem of active immunization makes most interesting reading. Chapter IV, by A. T. Glenny on active immunization with toxin, could hardly fail to be of great value, coming as it does from one who has had such a vast experience.

An account of the physiological action of toxins by J. W. Trevan (of necessity brief because our knowledge of the subject is so incomplete) is followed by a consideration of antigens and antibodies and the various immunity reactions. Knowledge of antigens and antibodies has been gained by a variety of methods: from the observation of their activities and reactions both in the living body and in the test tube, from a study of their chemical nature, and from a consideration of their reactions in the light of physical chemistry. The first of these lines of approach has given us a wealth of valuable facts, which are most ably presented in this volume in a series of chapters by R. Muir, C. H. Browning, J. A. Arkwright, and H. R. Dean, each of whom speaks with the authority gained by long and fruitful research. Although this type of immunological investigation can still be pursued with advantage, it is recognized that without the aid of the chemist and physical chemist much would remain unsolved.

In Chapter VII P. Hartley gives us an excellent survey of the activities of the chemist in this field. It is a very clear account, and leaves no doubt of the great practical value of the knowledge that the chemist is unearthing. The bearing of physical chemistry on immunological problems is a most important one, and should, in consequence, receive serious treatment; D. Steabben's chapter on this aspect of the subject is disappointing, and, in our opinion, quite inadequate. The chapter on anaphylaxis and related phenomena by W. M. Scott is excellent; we

[1] *A System of Bacteriology in Relation to Medicine.* Medical Research Council. Vol. vi. London: H.M. Stationery Office. 1931. (Pp. 538. Single volumes, £1 1s. net; set of nine volumes, £8 8s. net.)

have rarely read such a clear exposition of anaphylaxis. The volume closes with a valuable chapter on chemotherapy by C. H. Browning.

THE CONTROL OF MALARIA

In the majority of tropical countries, and in many temperate regions as well, malaria, its control and eradication, is an ever-present problem which is bound to come under the notice of the medical practitioner, no matter within which branch of medical science may lie the scope of his activities. How, then, is an estimate to be made of the prevalence of the disease; how may one determine in any given area which is the prevailing anopheline vector; and in what manner can steps be taken to lessen the incidence of the disease? All these and other questions are answered in the excellent work on malariology which Dr. MARK BOYD describes too modestly as an "Introduction" to the subject.[2]

It can be stated very briefly that the usefulness of this book is due to the fact that the author has presented within the compass of one publication all the essential features which, previously, had to be extracted from a wide range of textbooks, periodicals, and reports often not readily accessible to officers in the field. Such a book can and will be recommended with every confidence to the student and the beginner; the experienced malariologist will recognize its value at first sight. The general scheme is well planned. There are six sections in all, beginning with an introductory chapter which deals chiefly with the historical side of the work, especially in the New World, showing how, in many regions, there has been a fall in the incidence of malaria, and giving the reasons for that decline. The geographical distribution throughout the world is dealt with briefly but efficiently, and also is shown, in graphic form, by the aid of maps, to lie between the northern and southern isotherms of 60° F. Another particularly useful map indicates the various regions within which the three species of malarial parasites are endemic.

Within the limited space available it is impossible to do full justice to the wealth of material which the author has collected into the compass of this book, though it must not be imagined that the subject loses in any way from this condensation. All the facts are clearly expressed, and the text is easy to read. In the second chapter, for example, a useful account is given of the various types of fever, the relation between the number of parasites in the blood and the fever (the pyretogenous level), the mechanism of relapses, recrudescences, and recurrences, and the vexed questions of resistance, immunity, and tolerance. Due importance is placed on the enlargement of the spleen, the various influences which may modify that enlargement, the relation between the size of the spleen and the degree of anaemia, and the effect of treatment in causing a reduction in the bulk of the organ. An interesting account is given of the current state of knowledge with regard to the infectivity of the parasites in any given host towards anophelines, and the various factors that appear to have a bearing on the production of individuals who are what may be termed "good infectors" of mosquitos. The period of invasion, which may vary considerably in its clinical manifestations in different persons, is discussed in full. Before leaving this chapter on the natural history of malaria, mention must be made of the section on malaria prevalence, where a comprehensive view is taken of all the factors having a bearing on the production of endemic or epidemic conditions. The urgent necessity for such a broad outlook in malaria control is a matter on which Boyd rightly lays great emphasis. Chapter III is concerned with the methods of undertaking malaria surveys. The author draws attention to the fact that such surveys, for a multitude of reasons, can be carried out only on parts of the total population, and therefore that the "sample" surveyed should be as representative as possible. The sections on the estimation of the "splenic rate" and the "parasite rate" are particularly valuable from the practical point of view. In the former the various methods adopted by different workers of measuring the size of the organ are enumerated in detail, while the section on the parasitology is accompanied by a coloured plate illustrating the forms of the three malarial parasites in the blood of man.

The final chapters treat in turn of the "natural history of anophelines," "anopheline surveys," and the "relation of surveys to control work." The last of these is very short, and we feel that out of his ripe experience the author might advantageously have given more on the various practical steps to be adopted in malaria control. This is not intended as an adverse criticism, for in the one volume has been included all that could reasonably be expected; rather is it a suggestion for a future publication. Indeed, it may be said that in the excellent description of the biological characters of the vector, and in the detailed account of the conduct of anopheline surveys, Boyd has laid the essential foundation on which to base the subsequent measures of eradication.

SOCIAL PROGRESS AND HEALTH

The Halley Stewart Lectures, 1930, were delivered by Sir GEORGE NEWMAN, and have now been published in book form under the title *Health and Social Evolution*.[3] They assist in the study of Christianity in its "explicit and implicit application to the social relationships of man: for every individual by furthering such favourable opportunities as shall enable him most perfectly to develop body, mind, and spirit; in all social life, domestic, industrial, or national, by securing a just environment." They set out a clear and fascinating story in an admirable form and in an eloquent and beautiful style. Leading up to their main object of describing modern collective humanism at work in health services, and of counting, if possible, the national gains and losses up to the present time, they describe how England learned to control disease in the Middle Ages and in Tudor times, what the eighteenth century contributed to humanitarianism and to medicine, how the industrial revolution affected health problems, and how the coming of democracy and a more modern spirit have led to the health work of the State, the local authority, and the medical profession to-day.

This volume is intended primarily for the wide educated public interested in social problems and in public health, and Sir George Newman has again performed a useful service, both to the public and to the members of his own profession, in his wise presentation of the true relation of the medical profession to national health organization and those social movements with which it is intimately and increasingly associated. Two quotations will illustrate his message and his exposition.

"It is sometimes alleged that the State has captured the medical man and drawn him unwillingly within by its tentacles. But the facts of the last two hundred years suggest a truer interpretation of the relation between the State and the doctor. . . . From the beginning of the nineteenth century the Government has on innumerable occasions called in the doctors to advise on the nation as patient. . . . It has desired advice from those most competent to give it. . . . I know of no evidence that the State has captured the doctor, but it has, wisely enough, captured his goods. The medical

[2] *An Introduction to Malariology*. By Mark F. Boyd. Cambridge, Massachusetts: Harvard University Press; London: Milford, Oxford University Press. 1930. (Pp. xiv + 437; 82 illustrations. 25s. net.)

[3] *Health and Social Evolution*. By Sir George Newman, K.C.B., M.D., Hon. D.C.L., LL.D. London: G. Allen and Unwin, Ltd. 1931. (Pp. 200. 4s. 6d. net.)

man in Britain has not withheld his goods. Two generations ago the British system of public health was unique among the nations of the world. Why was this? Other nations were equally advanced in civilization, but in Britain the medical man had been called in and had willingly responded. He responded because he shared with other citizens that remarkable genius and instinct of public spirit and public service which has built our island history. . . . It was the general practitioner who in the eighteenth century laid the foundations of State Medicine. But it has been the social evolution of the nation which has given him the opportunity. . . . If he had been in Germany, France, Russia, or Italy, he would have found no social vehicle or scope for his public ministrations. Because he was in Britain, and within the elastic walls of its constitution, he arrived. Thus the State and the doctor have mutually co-operated with each other. . . . The doctor has joined in the national movement of collective humanism in behalf of the expansion and application of science to the betterment of man's estate. His sporadic and intermittent contribution has slowly become an organized national service."

"It became necessary to recognize that the doctor could only rightly and effectually serve the State if his individualistic and inductive characteristics were respected and safeguarded. Some principles governing the doctor's service to the State (as distinct from his medical practice on behalf of his private patients) had therefore to be considered and acknowledged. For instance, (*a*) that a doctor should not (except perhaps in time of war) be compelled to serve the State, as a doctor, against his will, for the simple reason that he could not practise medicine effectually except by his own free will and judgement; (*b*) that any medical or surgical advice given by him should be what he deems by the best exercise of his skill to be appropriate to the occasion, and not a treatment prescribed or restricted by the State; and (*c*) that between the doctor and his State-provided patient there should be as far as practicable mutual freedom of choice; that is to say that, apart from 'mental' or juvenile persons, the patient chooses his doctor or his hospital, and is not subjected to a doctor of whom, or of whose treatment, he does not approve. Let me put this into one word, a public medical service should never convert the medical profession into a branch of the Civil Service, for that would thwart or stultify the value of the particular service the doctor could render."

In his relatively short review of the problem of infant mortality, of the school medical service, of the health insurance system, and of the protection of motherhood, Sir George Newman clarifies the position by getting down to the essential features of each subject, and by his wise and careful comments it is to be hoped that he will be proved to have helped both the medical profession and the public to judge the situation intelligently, and to dismiss as negligible some of the wild statements on all these matters which are from time to time made by persons who, though they assume authority, have little or no practical experience of the subjects on which they speak. Finally, Sir George Newman does well to remind us of the health work of the League of Nations, and to emphasize the fact that health is, after all, a matter of individual responsibility, that "it is not the State that can or should give us all good things," and that "a public health service can only be effective if it is received and practised by an enlightened people."

SURGERY FOR THE GENERAL PRACTITIONER

Die Chirurgie des Praktischen Arztes,[4] by Professor ERICH SONNTAG of Leipzig, belongs to a class which it is very difficult to define and criticize. Such books are more common in Germany than in England. While they do not aim at a complete exposition of the subject, yet they pretend to be much more than works on minor surgery, and, generally speaking, they err on the side of over-ambition. Professor Sonntag's is a case in point. It contains nearly 900 pages and weighs (unbound) 5 lb., without professing to offer a complete presentation of the science and practice of surgery, and there is much in it that can hardly be turned to useful account by the average general practitioner, even in Germany. What this book offers to us, however, is in the circumstances good. Professor Sonntag knows his subject and how to set it forth.

The subject is considered in two parts, general and special, and the former occupies 400 pages. In examining such a book the reviewer naturally turns to the descriptions of some of those injuries and diseases which are most likely to come into the hands of general practitioners, and to the instructions given for their treatment; for on the prompt and correct treatment of these their reputation or even their living may depend. Less than five pages are devoted to fractures of the humerus, without any illustrations. Fractures of the lower end of the radius, including Colles's, fare better, and are illustrated by four figures. All kinds of fractures of the femur are dismissed in six pages of print, without illustrations. The Thomas splint is only referred to and represented as used after amputation. Internal derangements of the knee-joint receive very cursory notice. Fractures about the ankle, including Pott's, receive more attention, but are not illustrated, though the description of the procedure of putting up such a fracture in gypsum is careful. Appendicitis seems to interest the author more than fractures; incisions for the operation for its relief are described and illustrated; we presume it is by an oversight that the bare forefingers are represented as inserted into the abdominal incision. A striking feature of the book is its dearth of reproductions of *x*-ray pictures, although the importance of Roentgen films is insisted on generally. On the other hand, there is a photograph of a pair of ordinary nail scissors recommended for the care of the surgeon's hands, and illustrations are included to show how a sister in the theatre should and should not hold a bowl.

A HISTORY OF THE AMBULANCE MOVEMENT

In the eleventh book of the Iliad there is a reference to the principles of first aid. It was, however, practised long before the days of Homer, for, as Dr. CORBET FLETCHER says in his record of the St. John Ambulance Association,[5] "the history of the ambulance movement is the history of the world." The author presents us with a simple but carefully compiled diary of events, not only in the work of the association since 1864, but also in that of all the other kindred organizations. He has traced the gradual development of first-aid training in the police forces, on the railways, and in the mercantile marine. Many of the chronicled events occur on red-letter days in the history of the movement—for example, the designation, on December 14th, 1909, of No. 1 District of the Brigade as the "Prince of Wales's Corps," in recognition of "the valuable services rendered by the Brigade generally, and especially by the Metropolitan Corps, on so many public occasions in London, the metropolis of the Empire." This is a commendable publication, concise and full of information, with a good index and appendices concerning the personnel, honours, competition records, and textbooks of the association. We suggest that the page headings might give some indication of the principal item mentioned below; no doubt this will be considered in future editions. The volume should prove valuable to all interested in the subject of first aid, but especially to the rank and file of the association, to whom it is dedicated.

[4] *Die Chirurgie des Praktischen Arztes*. Von Professor Dr. Erich Sonntag. Leipzig: G. Thieme. 1931. (Pp. xi + 879; 684 figures. M.49.)

[5] *The St. John Ambulance Association, its History, and its Part in the Ambulance Movement*. Compiled by N. Corbet Fletcher, M.B., B.Chir., M.R.C.S., L.R.C.P. London: The St. John Ambulance Association. 1931. (Pp. 116. 3s. 6d.)

NOTES ON BOOKS

In the preface to *A Handbook on Diseases of Children*[6] Dr. BRUCE WILLIAMSON indicates that he has tried to provide a "short but complete account of the diseases and disorders of infancy and childhood" for the student, the practitioner, and the post-graduate working for a higher examination. The book is certainly short, but success cannot be recorded for the other claims. Prematurity and diseases of the newly born receive no mention, and the treatment of many subjects is sketchy. For example, in the section on scurvy, haematemesis is stated to be "fairly common," whereas in fact it is a rare symptom, while the almost constant presence of red blood cells in the urine is not recorded here, although it is mentioned under the diagnosis of acute nephritis. In recommending sodium salicylate for the treatment of rheumatism, the author mentions the addition of sodium bicarbonate to the mixture only in the "formulary" at the end of the book, and not at the place where the inquirer would naturally look—namely, under rheumatism. In many places the phraseology is either vague—as, for example, under the treatment of summer diarrhoea, when it is advised to give saline "into the fontanelle"—or slapdash—as in the statement that "purpura has a hundred and one causes." The chapters on disorders of the heart and circulation reproduce much of Dr. G. A. Sutherland's valuable teaching, which will be, perhaps, new to those not actively engaged in the study of diseases of children.

Miss R. M. SIMMONDS's *Handbook of Diets*[7] is a most useful volume, which will prove of great assistance to those responsible for treatment of patients, both in private practice and in institutions. It includes a table giving the carbohydrate, protein, and fat content of a large number of common foodstuffs, many prescriptions and recipes, specimen diet sheets, and useful tables. Miss Simmonds is to be congratulated on producing a very concise and satisfactory handbook.

Dr. I. FISCHER's work on Proper Names in Nosological Terminology,[8] which is reprinted from issues of the *Wiener medizinische Wochenschrift* of the last two years, is appropriately dedicated to Lieut.-Colonel Garrison. It contains, in alphabetical order, a list of eponymous diseases, with a short account of the author who first described the disease, and references to his original description, from which a short extract is occasionally given, and to other historical articles on the particular disease. The work forms a valuable supplement to the ordinary medical dictionary, in which space forbids more than the briefest mention of eponymous diseases.

The *Pharmacopoeia of St. Thomas's Hospital*,[9] of which a new edition has just appeared, is at least as compact and comprehensive as any other work of its kind, and will no doubt prove of much service to students, past and present, of the hospital.

The biographical sketch of Brown-Séquard and his Work,[10] by Dr. F. A. ROUGET, president of the Mauritius Medical Society, represents a token of respect offered by that society to the memory of its most distinguished president of honour, who was not only an eminent neurologist, but also the founder of endocrinology. The book is divided into seven parts, dealing respectively with Brown-Séquard's life, family and marriages, the question of his nationality, his character, his scientific work, tribute to his achievements, and a list of the numerous distinctions conferred upon him. The appendices contain a variety of miscellaneous information about Brown-Séquard, including recollections and appreciations of him by his pupils and friends.

The Temple Press, Ltd., has published, at the price of 2s. 6d., a fifth edition of *The Motor Electrical Manual*. This illustrated handbook and guide for motorists describes in simple language the principles, construction, and working of electrical appliances used on cars.

The *Handbook*[11] offered by Messrs. T. P. M'DONALD and GEORGE DAVIE as a guide to the complexities of the Contributory Pensions Acts of 1925 and 1929 is a laudable attempt to bring light into dark places, and will doubtless be welcomed by those who may be called upon to advise potential beneficiaries as to their position under the Acts. After reading it we can well believe, with the authors, that "many people are in doubt whether the Act of 1929 has conferred upon them any right to a pension."

[6] *A Handbook on Diseases of Children*. By Bruce Williamson, M.D.Ed., M.R.C.P. Edinburgh: E. and S. Livingstone. 1931. (Pp. xii + 290; 50 figures. 10s. 6d. net.)

[7] *Handbook of Diets*. By Rose M. Simmonds, S.R.N. London: W. Heinemann (Medical Books) Ltd. 1931. (Pp. vii + 108. 7s. 6d. net.)

[8] *Die Eigennamen in der Krankheitsterminologie*. Von I. Fischer. Wien und Leipzig: Moritz Perles. 1931. (Pp. vi + 144. M.5.)

[9] *Pharmacopoeia of St. Thomas's Hospital*. Compiled under the direction of a Committee of the Medical and Surgical Staff by C. Wilson Peck. London: H. H. G. Grattan, and the Bookstall, St. Thomas's Hospital. 1931. (Pp. 179. 3s. net.)

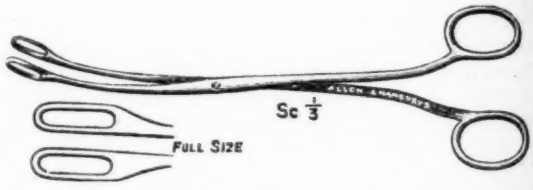
[10] *Brown-Séquard et Son Œuvre*. Par Dr. F. A. Rouget, O.B.E. Esquisse biographique. Port-Louis, Mauritius: The General Printing and Stationery Company, Ltd. 1930. (Pp. iii + 160.)

[11] *Handbook of Widows', Orphans', and Old Age Contributory Pensions*. By T. P. M'Donald, LL.B., and George Davie, B.L. Edinburgh and London: W. Hodge and Co., Ltd. 1930. (Pp. 104. 3s. 6d. net.)

PREPARATIONS AND APPLIANCES

COMMON DUCT FORCEPS

Mr. CHARLES KINDERSLEY (Bath) writes: Having been struck by the fact that the blades of Desjardin's common duct forceps were usually smooth when closed, and presented some comparatively sharp corners when open, I asked Messrs. Allen and Hanburys Ltd. to make a pair to my own design.



The only difference in the new pattern is that all the projecting corners have been eliminated, the gripping surfaces of the jaws being the same. When the forceps are applied to a stone in the bile ducts or the ureter they cannot injure the mucous membrane. This sometimes happened with the old pattern.

A MODIFICATION OF MAYO'S NEEDLE HOLDER

Dr. R. C. MACPHERSON (medical superintendent, St. Mary's Hospital, Milton, Portsmouth) writes: In using the original Mayo's needle holder for deep abdominal work I have recently found that the small knob on the handle with the thin steel wire spring becomes weak and inefficient with constant use, and eventually breaks. This causes the grip on the needle

to become loose, and I have asked Messrs. Maw to make a modification, which I consider adds surety and safety to the grip on the needle. The modification consists of a powerful spring band attached to the inner surface of the handle (as illustrated), which gives a much firmer bite on the needle and a firmer engagement of the hook on the ratchet of the other blade. This improvement has to be felt in practice to be fully appreciated. The old spiral spring of the original Mayo needle holder is much too flimsy. It gets out of order in such a way that the hook does not properly engage on the ratchet, and the slightest accidental touch on the knob sets free the catch, so releasing the grip on the needle at the most inopportune moment. The new spring requires a firm, deliberate pressure on the knob to release the needle, which cannot be done accidentally.

British Medical Journal

SATURDAY, MAY 23rd, 1931

THE PROPRIETARY MEDICINES BILL

We print in our *Supplement* this week the full text of Mr. Somerville Hastings's Proprietary Medicines Bill. Whatever its ultimate fate (and it is at least clear that it can make no progress this session) the Bill should prove a useful instrument of education if it can secure the publicity it deserves. Its provisions fall into three groups, dealing with compulsory registration of remedies, total prohibition of direct distribution to the public of remedies for certain scheduled diseases, and elimination of some undesirable forms of advertising. Of these the first group is the most controversial. It has been argued on the one hand that disclosure of ingredients to the purchaser should be a condition of sale, and on the other that in the case of medicines declaration of the inclusion or absence of any ingredient named in the schedules to the Poisons and Pharmacy Acts should be a sufficient safeguard, and that control of appliances is unnecessary. The Bill rejects both these alternatives in favour of the original proposal of the Select Committee—namely, confidential communication of formulae to the authority for registration and the deposit of specimens with the authority in the case of appliances. In the absence of any indication that public opinion would support publication of formulae this middle path is clearly the way of wisdom. Disclosure of ingredients mentioned in the schedules to the Poisons and Pharmacy Acts would do no more than will be provided by the Pharmacy and Poisons Bill now under discussion, and would not touch the main evil. Nor is it desirable to suggest either that the dangers of indiscriminate medication are confined to scheduled poisons, or that deliberate fraud may be tolerated so long as no direct danger to health arises. Further, nothing short of the confidential communication of formulae and deposit of specimens can enable the authority for registration to pass judgement upon the propriety of the therapeutic claims advanced and the directions for use issued with any proprietary remedy as he is required by the Bill to do, or safeguard the public against variations in the composition of a remedy from year to year or month to month, to suit the economic convenience of the proprietor.

Registration of appliances involves some practical difficulties, but it seems no less desirable than registration of medicines. Indeed, since the publication of the Select Committee's Report, the position as regards appliances has been altered for the worse by the multiplication of "electric" and "radio-active" frauds on the one hand, and of effective and therefore potentially dangerous electric or radio-active appliances and numerous forms of apparatus for light treatment on the other. In all these cases there ought to be some check upon the claims made and upon the directions for use. If any further reasons are needed for controlling appliances as well as medicines it may be pointed out that to control the latter and leave the former free would merely divert the unscrupulous proprietor from one field to the other. In dealing with the total prohibition of the sale and advertisement direct to the public of remedies for certain specified diseases the Bill follows the amendments made by the House of Lords in Dr. Addison's Bill, in preference to the recommendations of the Select Committee. The original proposal was to prohibit the sale of "all remedies stated to be effective for the prevention, cure, or relief of cancer, consumption, lupus, fits, epilepsy, amenorrhoea and other diseases peculiar to women, diabetes, paralysis, locomotor ataxia, Bright's disease, deafness, and rupture," but it was pointed out in discussion that there is a legitimate field for the exploitation of appliances for the relief of deafness and rupture, provided exaggerated and misleading claims are excluded. Accordingly the prohibition in the new Bill is made applicable to medicines and surgical appliances held out as effective for the "cure" of deafness or rupture, or the "prevention, cure, or relief" of the other diseases enumerated above. Any alteration by the Minister of the scheduled list of diseases is made subject to the approval of both Houses by resolution.

In the provisions designed to eliminate undesirable forms of advertising, the Bill embodies certain clauses not included in Dr. Addison's Bill of 1920. Of these it may be said at the outset that none goes beyond the spirit of the recommendations of the Select Committee, and some would give effect to specific recommendations of that body which seem to have been overlooked when the earlier measure was drafted. Thus the Select Committee recommended prohibition of all advertisements of remedies for diseases arising from sexual intercourse or relating to sexual weakness, and also of any advertisement suggesting that an article might be used or might operate as a means of procuring abortion or miscarriage. The first of these prohibitions was omitted from the Addison Bill, possibly from some erroneous idea that the point had been covered in the Venereal Diseases Act. Its importance needs no elaboration for anyone conversant with widely circulated advertising literature of this class, and it is included in the present Bill. Another useful addition is the clause which defends professional publications from misquotation in advertisements by requiring that any reference to an alleged recommendation of a proprietary remedy in such a publication shall be authenticated for purposes of verification by mention of the name, date, and page of the publication quoted. For the rest the Bill follows the recommendations of the Select Committee in penalizing publication of a false trade description of any proprietary remedy, and thus goes further than the Addison Bill.

As we have already stated the Bill is, in our opinion, well drawn, but we regret that so unfavourable a time has been chosen for its introduction. Proposals for the control of traffic in proprietary remedies must inevitably meet with an opposition whose bitterness and strength correspond to the magnitude of the material interests affected. But the Bill is open to attack from another angle. Any scheme of registration must involve not only the erection of a new authority or an addition to the existing powers of the Ministry of Health, but also an addition to the ranks of the Civil Service, for the purpose of carrying out the requisite inspection and analysis and the examination of therapeutic claims and directions for use. This is hardly an auspicious moment to propose either new powers for a Minister or additional public outlay. That objection, however, is inapplicable, or applicable only in a minor degree, to the provisions prohibiting the sale and advertisement of remedies for the scheduled diseases, and those for the regulation of advertising. The issue as regards the former group is clear, and must be faced on its merits; it cannot be avoided by an appeal to economy or to the fear of departmental tyranny. Concerning the latter, we have reason to believe that the proposals for the better regulation of advertising would in the main have the whole-hearted support of the Advertising Association and of that section of the press which already tries to discriminate between legitimate and fraudulent or dangerous advertising and finds real difficulty in doing so. We suggest, therefore, that the sponsors of the Bill might be well advised to consider the possibility of withdrawing, for the time being, the clauses that deal with registration, and to concentrate upon the less controversial clauses that deal with the scheduled diseases and the regulation of advertising. This is emphatically a case in which any advance is better than no advance at all; and there seems no ground for supposing that the ultimate fate of any scheme of registration to be introduced at some more favourable opportunity would be in any way prejudiced by the immediate success of the partial measure we suggest.

HUGHLINGS JACKSON

We publish on another page this week a letter, signed by a number of representative physicians, surgeons, and scientists, appealing for support for a fund which it is proposed to raise with a view to commemorating the name of Dr. Hughlings Jackson. The Hughlings Jackson Lecture was founded in 1897 by the old Neurological Society to do honour to him as its first president, and it has been delivered triennially ever since, with some interruptions. With the money to be obtained the signatories of the letter suggest an endowment sufficient to furnish future lecturers with an honorarium, and, it is understood, also with a medal, thus enabling them to have a worthy souvenir of their official association with the memory of a man who was held in the highest esteem and regarded with the deepest affection by all who came to know him.

Jackson died in 1911, and already those who were his intimates and associates are becoming fewer, while others who came in contact with him as juniors find their memories dimmed with the passing of time. It is difficult to convey to newcomers in the field of neurology the peculiar influence unconsciously exercised by him on the minds of his colleagues and students. What his subject was like when he entered the field in the sixties of last century can be gauged by reference to contemporary literature; it was the era of morbid anatomy, with little or no serious attempt at scientific clinical observation, and still less at either neuro-physiological or psychological experiment. Jackson proceeded quietly but insistently on his way; his vivid but controlled imagination, combined with the philosophic bent of his mind, resulted in the appearance of a succession of hypotheses, founded on exact clinical study, which as by a flash illuminated the workings of the brain, and served in the most striking fashion to stimulate inquiry and provoke systematic research. No better proof of this is required than the unanimity with which distinguished colleagues acknowledged their indebtedness to him, or the eagerness that animated younger men to get into personal touch with him and learn from his rich experience or become imbued with some of his spirit. As the years passed it became obvious that Hughlings Jackson had consolidated doctrines in respect of the nervous system and its functions which proved to be not merely fundamental on the scientific side, but extraordinarily fertile when applied to problems of nervous disease. To the end of his life he was instrumental in fanning the flame of research in other minds, in awakening thought and stimulating observation; and when these effects were produced by one of singular modesty and personal charm, willing and ready to see points of view other than his own, the result was to endear him to the hearts of all who were associated with him.

Yet in one sense his fame was limited: to understand his marvellous achievement required knowledge of the subject, and neurology had not then attained the prominence, even publicity, which it receives to-day. Without being aware of it, perhaps, a new generation has arisen which has entered into his labours, and the commonplaces of nervous disease and of cerebral physiology are accepted without a thought being given to the one man above all others whose genius discovered them and foresaw their significance. To commemorate in some permanent way his greatness, to secure, even if tardily, that further honour should be done to his name, to evince to younger students of the same subject that he was the fount of inspiration to their predecessors, is the purpose of this appeal. It is twenty years since he died, and if personal memories linger only with comparatively few, the spirit which animated him is undying so long as it is reborn in those that come after him and find in his work an incentive and in its emulation a reward.

SCHOOLS OF HYGIENE

The Commission on Education in Hygiene and Preventive Medicine, appointed by the Health Committee of the League of Nations in 1924, invited and received reports from a number of countries, including Great Britain. It attended conferences at the opening of new schools of hygiene at Warsaw, Budapest, and Zagreb, and in 1930, under its auspices, meetings of the directors of certain schools of hygiene were held in Paris and Dresden. The report[1] on these conferences is of interest both for the general principles it formulates and for the data it supplies regarding the scope of health instruction in Great Britain and other countries. The introductory section, by Professor Léon Bernard of Paris, recalls three principles in health organization which are regarded as vital: (1) that unless a body of trained experts is formed no public health work is possible; (2) that without the collaboration of an enlightened medical profession the work of these experts would be sterile; and (3) that without the support of the masses the precepts of hygiene would remain a dead letter. With reference to the schools of hygiene in which these experts receive their training, three further principles are laid down: (1) that there should be co-operation between schools of hygiene and universities and the public health services; (2) that the universities and public health services should be represented in the management of the schools; and (3) that the schools should combine the scientific spirit with a practical outlook. The report urges the value of research to schools of hygiene on the ground that it stimulates the intellectual activity of the members of the teaching staff and increases their influence both on their colleagues and on their students. Whether the research is pure or applied is not of primary importance. It will, as a rule, be carried out by the staff, but it may be entrusted to specially qualified students. The place occupied in curriculums by sanitary engineering will depend upon the degree of development of the general sanitation in the country concerned. In less advanced countries the subject may occupy a prominent position; in countries like ours which enjoy an established sanitary tradition it is only necessary that the student who aspires to become a medical officer of health should acquire enough knowledge of sanitary engineering to enable him to supervise the work of his sanitary inspector and to discuss with understanding plans or schemes drawn up by engineering specialists. Much weight is properly attached to "field training," by which is meant the opportunity of gaining experience of the practical aspects of hygiene. To this end visits should be made to places and institutions of hygienic interest, and the student should himself take part in the work of a public health service. Field instruction should aim at training, not teaching, and a period of not less than six months should be devoted to it. The number of teachers of different subjects in a school should be ten to fifteen. If the number is inadequate specialized instruction can scarcely be given: if there are too many the course tends to be broken up into a succession of detached lectures. Some schools provide training for auxiliary health personnel and also instruction in health matters for the general public; others confine their efforts to the training of medical officers of health. Schools of hygiene should be autonomous institutions, not necessarily closely associated with a university, but including university professors on their staffs. With regard to the health teaching of the student of medicine, as distinguished from that of the candidate for a diploma in sanitary science, the report emphasizes that in most European countries the instruction which the medical student receives is not sufficient to equip him for the proper discharge of his duties as a medical practitioner. It is confined to a theoretical outline, and does not adequately take account of the social problems involved. Throughout his curriculum the student's attention should be directed to the social aspects of medicine. The task of inculcating this lesson would fall mainly to his clinical teachers in dispensaries and out-patient departments. Arrangements along these lines, it is suggested, would function best in small teaching units; in large universities suitable schemes may be difficult to organize. In some cases it would be possible for the medical officer of health to take part in the practical instruction of students of medicine. The preventive idea should pervade the whole of the student's medical training; if this is secured he will come to his formal course in hygiene towards the end of his curriculum with a mind prepared. The professor of hygiene, who should himself have a thorough experience of practical hygiene and be a competent clinician, should urge this policy on his colleagues in the school or university. The body of the report sets forth with numerous plans and illustrations the construction, arrangement, administration, and curriculums of the schools of hygiene of London, Warsaw, Zagreb, and elsewhere. It should prove of interest to all engaged in the organization of new schools or in the rearrangement and expansion of existing institutions.

[1] League of Nations Health Organization. Report on the Work of the Conferences of Directors of Schools of Hygiene. Geneva, 1930. (1.25 dollars; obtainable in Great Britain from Allen and Unwin, Ltd., 5s.)

A NEW INTERNATIONAL CONFERENCE ON THE TRAFFIC IN NARCOTIC DRUGS

An international conference on the limitation of the manufacture of narcotic drugs will assemble under the auspices of the League of Nations at Geneva on May 27th. Representatives from all countries, whether producers or consumers only of the drugs in question, will there meet, with a view, if possible, to agree on amendments of the Geneva Convention of 1925 and to achieve the limitation of the dangerous alkaloids derived from the opium poppy and coca leaves to strictly medical uses, as contemplated by Article 9 of The Hague Opium Convention of 1912. A twenty-seven-page pamphlet has been prepared by the secretariat of the League describing the history of the movement since 1912 and the present situation. It recites the task submitted by the Assembly of the League to the contentious conferences which met at Geneva in 1924, and how the direct limitation of the production of opium and coca leaves and their alkaloids to the amounts required for legitimate use was abandoned in favour of indirect limitation by the control of imports and exports. It shows how failure to ratify, or to carry out, the Geneva Convention led, during the next five years, to an increase of the illicit traffic, till it assumed "alarming proportions." It relates the attitude of the Advisory Opium Committee,

which favoured procedure under the Geneva Convention, and that of the tenth Assembly of the League, which preferred "supplementing the Convention without delay so as to limit the manufacture of dangerous drugs to the amounts required for medical and scientific purposes." Reference is made to the limitation scheme of 1930, based on the allocation of quotas of the total world requirements among manufacturing countries, and to the failure of the London Conference of November, 1930, to agree on what the quotas should be. Further investigation by the Advisory Committee, now reinforced by representatives of non-producing countries, has shown the complexity of the problems which will confront the conference; the draft of a new convention, which is to be submitted, is clearly understood to be merely a basis for discussion, and alternative methods of achieving the desired limitation will be duly considered. The Italian, Belgian, Japanese, Turkish, and Yugoslav delegations have objections to raise or amendments to propose, while the method of dealing with contraband seizures, the control of prices, the inclusion of new drugs of addiction, and the constitution of a central organ for supervising estimates and distribution, will engage the attention of the new conference.

GLASS

Glass is of such common use that very few think what an amazing substance it is: solid, resistant, and yet able to transmit the view as though there were no obstruction between the eye and the view. But more amazing are the varieties of glass which the modern chemist has devised. In a recent lecture to the Illuminating Engineering Society[1] Dr. S. English dealt with the technical aspects of these glasses. The bands of coloured light we see in the rainbow do not represent the total radiations present in the sunlight. The same is true of most artificial sources of light. There are invisible rays at each end of the spectrum—the ultra-violet rays and the infra-red rays. According to the chemical constituents of the glass so the transmission of these rays may be varied and the invisible rendered visible. The ideal material for transmitting ultra-violet rays is silica, though it is too expensive for general use; ordinary glass contains 70 to 75 per cent., but since there are many other constituents little of these rays pass through it. Iron oxide is the chief of the obstructors; good ultra-violet glass may contain as little as 0.02 per cent. The ferrous oxide is less disturbing than the ferric oxide. In the preparation of such glass, reducing substances are included in the batch mixture to convert the ubiquitous iron to the ferrous salt. But when the glass is exposed to ultra-violet radiation, either from the sun or from an artificial source, the ferrous oxide is converted into the ferric oxide. Because of this change a glass which has a transmission of, say, 60 per cent. of the health rays when new may have this figure reduced to 50 or even 40 per cent. after its iron oxide has come to an equilibrium. The change is spoken of as "solarization"; it takes from three to six months to become complete. All commercial glasses suffer from this defect in varying degrees. Wood's glass, named after its inventor, Professor Wood of Johns Hopkins University, owes its peculiar properties to the fact that it contains a certain proportion of nickel oxide on a potash base, which is sufficient to colour the glass a very deep blue, and thus obstruct the passage of rays of visible light, but not the ultra-violet rays. By the use of a glass of this type it is possible to have a room in darkness but filled with invisible rays that only need a suitable medium for showing them up. Fluorescent solutions will do this. But there is a glass, known as canary glass from its colour, which contains 1 per cent. of uranium oxide; this has the power of converting the invisible rays into the longer rays of green light, which can be seen by the eye. Wood's glass has been very valuable in research and in applied medicine; by means of it hair from a scalp infected with ringworm shows a strong fluorescence, healthy hair does not. Genuine pearls and false ones can be distinguished, natural teeth and artificial, and so forth. It can be employed in delicate acid-alkali titration tests, with quinine as an indicator. Crookes's glass is well known and widely used. The cerium in it absorbs the ultra-violet rays strongly. It may be a nearly colourless glass, and yet filter the active rays from light to the comfort of the eyes of the hypersensitive, and for the protection of fabrics likely to fade. Everyone is familiar with the power of glass to transmit heat, of which advantage is taken in the common garden greenhouse, but a glass that will cut off all the heat rays can be produced. Crookes found that iron oxide was the most effective constituent of glass for this purpose, giving it the familiar green colour of the pre-war bottle. Glasses of this type are of great value in the Tropics, and even in this country for roofs or skylights, and they have been found of service for hospital operating theatres. By the use of such glass the temperature indoors can be kept quite cool when there is hot sunshine out of doors. The colour of the glass is not in its favour, but after a little time is spent in a room or workshop glazed with such glass the colour is not noticed. A glass the very reverse of this has been produced, which will absorb all visible rays but transmit infra-red rays. It has been of great service in invisible signalling, and it has a field of usefulness for burglar alarms and apparatus of that type.

[1] *Illuminating Engineer*, February, 1931.

THE BRITISH SCIENCE GUILD'S PROGRAMME

Speaking at the annual meeting of the British Science Guild, the president, Sir Samuel Hoare, said that the Guild was intended to be a bridge between the world of science and the general life of the country. Its lectures and publications showed how catholic were its interests and how practical its methods. It had, for instance, published a *Catalogue of British Scientific and Technical Books*, now in a third and enlarged edition. It had carried out an investigation into the position of the technical expert in the public services and industry; and such lectures as Sir William Pope's on "Science and modern industry" and Sir David Prain's on "Science discipline" made a considerable impression on public opinion during the past twelve months. The Guild was now anxious to embark upon a more ambitious programme, and intended to investigate the potentialities of existing industries and the effect that the proper application of science would

have upon them. In the present crisis all the help that scientific inquiry could apply was needed. Were successive Governments helping or hindering the application of science to industry? How far were reactionary employers and equally reactionary trade unions impeding progress? These were the kind of questions that the Guild wished to deal with in its inquiry. Science and disarmament was another field of investigation that he would like to see explored. The knowledge he gained at the Air Ministry convinced him that armaments was going to be the central question of foreign politics in the years immediately ahead. He believed that if the discussions at Geneva next year were to be really useful, the scientific aspects of disarmament should be brought into even greater prominence than its political and financial aspects. The main problem, and by far the most difficult, was that of the new weapons of destruction and the need for finding some means of controlling them. Should the world of science help these developments? The question was by no means a simple one, for scientists would discover new rays and gases and explosives in the stride of their ordinary work. Should gas warfare be prohibited? One school of thought maintained that gas warfare was more humane than a warfare of machine-guns and high explosives, and that the gas warfare of 1917 exhausted the future possibilities of this kind of attack. Sir Samuel Hoare did not share this view, but he maintained that scientists alone could give a true answer to the question.

CATS AND HUMAN DISEASE

There must be several million cats at present alive in this country. They live in a very intimate relationship with mankind, more intimate than in the case of any other animal, and their potentialities for the transmission of disease to human beings must be considerable. Accordingly, a recent review of the literature on the cat in relation to disease transmission[1] by D. R. A. Wharton, is of considerable interest. Cats, especially when young, may be experimentally infected with the organisms of diphtheria and of tuberculosis. There is, however, little evidence that cats frequently or even occasionally suffer from naturally acquired diphtheria ; and, while they are susceptible to both human and bovine strains of tuberculosis, and have almost unrivalled opportunities for becoming infected with either, a remarkably small number suffer from this disease also. Cats do sometimes suffer from plague, and may play a part in the dissemination of this disease ; and, like their masters, occasional cases of glanders, anthrax, and foot-and-mouth disease have been reported in them. Rabies occurs now and then in cats, and here the bite is probably more dangerous than that of the dog, because of the fine, needle-like teeth. Sometimes protozoa pathogenic to man are reported from the cat, and it does undoubtedly harbour a number of human helminths, especially those which, like dibothriocephalus, clonorchis, heterophyes, and paragonimus, are transmitted by fish or shell-fish. Lastly, feline mange, fleas, and ringworm are sometimes transmitted to man. The net results of the review is that, while the cat can suffer from a variety of infections which also occur in man, in actual practice, apart from acting as reservoir to a number of flatworms, its influence on public health is probably negligible.

[1] *The Cat in Relation to Disease Transmission : A Review.* By Denis R. A. Wharton. Long Island, New York: The Biological Laboratory, Cold Spring Harbor. March, 1931.

POST-GRADUATE COURSES IN TUBERCULOSIS

The Joint Tuberculosis Council has arranged a post-graduate course in Holland from June 29th to July 4th. Visits will be paid to The Hague, Amsterdam, Alkmaar, Laren, Hilversum, and Apeldoorn among other places ; arrangements will be made to inspect urban and rural dispensaries, tuberculosis hospitals, open-air schools, after-care colonies, and sanatoriums, special lectures and demonstrations being given in each place. No lecture fee will be charged ; inquiries about touring expenses should be addressed to Dr. W. Brand, 8, Highway Court, Beaconsfield, Bucks. A post-graduate course will be held in Lancashire from October 19th to 24th, with special relation to central administration in counties and cities, the application of actinotherapy and radiology to tuberculosis, the pathology of tuberculous lesions, treatment of advanced and chronic pulmonary cases, and pneumonoconiosis. Dr. P. W. Edwards, medical superintendent of the Cheshire Joint Sanatorium, will give, at dates to be arranged, a series of short intensive post-graduate practical courses on modern methods of treating tuberculosis of the respiratory system, with special reference to collapse therapy. Methods of sanatorium administration will also be demonstrated. No class will exceed four members in number or three days in duration, and suitable arrangements for board and residence can be made within convenient distance of the sanatorium. All communications about these courses should be addressed to Dr. Brand.

WELFARE OF THE BLIND

In view of the continued development in the work among the blind, owing to the operation of the Blind Persons Act, 1920, and the Local Government Act, 1929, and the new problems constantly arising in connexion with this service, the Minister of Health has reappointed the Advisory Committee on the Welfare of the Blind for a further period of office. The committee has been constituted so as to afford representation to the local authorities concerned with the working of the Blind Persons Act, 1920, and to voluntary associations for the blind, as well as to organized blind workers. The chairman of the committee is Lord Blanesburgh, and the medical members are Dr. A. Eichholz, Dr. S. J. C. Holden, and Dr. J. Middleton Martin. The committee will advise the Minister on matters relating to the care and supervision of the blind, including any question that may be specially referred to it by the Minister. Mr. F. M. Chapman of the Ministry of Health will act as secretary.

The Minister of Health and the Secretary of State for Scotland have appointed a committee to inquire into the working of the law as to the composition and description of articles of food other than milk, and to report what alterations, if any, in the law or its administration appear to be desirable. The chairman of the committee is Sir Frederick J. Willis, and the medical member is Dr. J. M. Hamill. The secretary is Mr. W. J. Peete of the Ministry of Health, to whom all communications on the subject should be addressed.

HUGHLINGS JACKSON MEMORIAL

We have received for publication the following letter dated May 13th, 1931:

"A fund is being raised to establish a permanent memorial to Dr. Hughlings Jackson. Among those who are taking action in the matter are many old friends and pupils who revered and loved Jackson, and who recognize to what an extent the pre-eminent position of British neurology in the medical world is due to his work and influence. He was among the great leaders of modern neurology, and it is much to be desired that the inspiration that he gave to so many in his lifetime should be kept fresh, and still serve as a stimulus to a younger generation who knew him not.

"It is hoped to raise an amount sufficient to provide a permanent endowment for the Hughlings Jackson Lecture, given every third year before the Section of Neurology of the Royal Society of Medicine. Several generous promises of support to such a fund have already been received, but the signatories of this letter feel that an opportunity to subscribe should be given to many who can only be reached through the publicity of the press, and who would certainly wish to show their appreciation of the position which Hughlings Jackson holds in the history of modern medicine. Dr. Wilfred Harris, of 56, Wimpole Street, London, W.1, has consented to act as treasurer of the fund, and subscriptions should be sent to him, marked 'Hughlings Jackson Memorial Fund.'"

This letter is signed by Sir Thomas Barlow, Past-President, Royal College of Physicians; Sir John Rose Bradford, Past-President, Royal College of Physicians; Professor Judson Bury, Past-President, Association of Physicians; Sir E. Farquhar Buzzard, Regius Professor of Medicine, University of Oxford; Dr. James Collier, Senior Physician, National Hospital, Queen Square; Lord Dawson of Penn, President, Royal College of Physicians; Sir Henry Head, late Editor of *Brain*; Dr. Gordon Holmes, Editor of *Brain*; Mr. Leslie Paton, President, Section of Neurology, Royal Society of Medicine; Sir Percy Sargent, Surgeon, National Hospital, Queen Square; Sir Charles Sherrington, Past-President, Royal Society; Dr. James Taylor, Consulting Physician, National Hospital, Queen Square; Dr. S. A. Kinnier Wilson, President, Section of Psychiatry, Royal Society of Medicine; and Dr. Wilfred Harris.

FIRST LIST OF SUBSCRIBERS

The following is a preliminary list of subscribers to the Hughlings Jackson Memorial Fund.

Dr. W. J. Adie	Dr. Edward Mapother
Professor E. D. Adrian	Professor Pierre Marie
Sir Thomas Barlow	Dr. C. S. Myers
Dr. A. Stanley Barnes	Dr. E. O'Flynn
Dr. Helen Boyle	Mr. Leslie Paton
Sir John Rose Bradford	Dr. S. M. Payne
Dr. Judson Bury	Sir James Purves-Stewart
Sir E. Farquhar Buzzard	Dr. Nathan Raw
Dr. Hugh Carleton	Dr. George Riddoch
Dr. P. C. P. Cloake	Dr. A. E. Russell
Dr. James Collier	Dr. J. S. Risien Russell
Dr. Macdonald Critchley	Dr. W. R. Russell
Lord Dawson of Penn	Sir Percy Sargent
Dr. D. E. Denny-Brown	Dr. Ruby Stern
Sir David Drummond	Dr. W. H. B. Stoddart
Dr. Anthony Feiling	Dr. H. N. Stoessiger
Dr. R. G. Gordon	Dr. C. P. Symonds
Dr. J. G. Greenfield	Dr. James Taylor
Sir William Hale-White	Dr. Theodore Thompson
Dr. Wilfred Harris	Dr. Campbell Thomson
Dr. Gordon Holmes	Mr. Wilfred Trotter
Dr. Redvers Ironside	Dr. W. Aldren Turner
Dr. Ernest Jones	Dr. Parkes Weber
Dr. H. S. Le Marquand	Mr. F. A. Williamson-Noble
Dr. Douglas McAlpine	Dr. S. A. Kinnier Wilson
Dr. E. D. Macnamara	Dr. W. Wyllie

EARLY MEN AND APES

BY

PROFESSOR G. ELLIOT SMITH, M.D., F.R.S.

During the time that has elapsed since Sir Arthur Keith last made (in 1925) a comprehensive survey of the facts relating to the antiquity of man so much of cardinal importance has happened in the domain of human palaeontology that the time was ripe for a commentary on the new discoveries. This he has supplied in the present volume,[1] which closely conforms in its methods of exposition and illustration to the well-known treatise to which it forms a supplement. It gives a very useful survey of the additions to our knowledge of Neanderthal Man and the new representatives of that species found in Gibraltar, Germany, Italy, the Crimea, and Palestine; and of the conflicting reports on the remains of more modern men from East Africa, South Africa, Australia, and elsewhere. There are also disquisitions on the excavations at Ur in Sumer, on the significance of endocranial casts, and on an acromegalic skull from a Christian cemetery of the twelfth century in Greenland, to which, with amazing irrelevance, a distinct specific rank (*gardarensis*) is accorded. This provides Sir Arthur with the opportunity once more to set forth his familiar speculation that some extinct types of primitive men were the victims of an imaginary disturbance in the working of their pituitary glands. On this subject he still leaves us wholly in the dark as to the precise nature of his claims, and what exactly his argument is.

The major part of the book is devoted to lengthy reports on, and discussions of the significance of, the Taungs ape, first described in 1924 by Dr. Raymond Dart, professor of anatomy and dean of the Medical School in the Witwatersrand University; the Lloyds skull, representing the earliest known inhabitant of the City of London, the finding of which was recorded by Mr. Warren R. Dawson in 1925; and the most significant discovery in human palaeontology, the remains of Peking Man, with which the name of Professor Davidson Black will always be associated, though the actual fossils were found in 1927, 1928, and 1929 by Dr. Birger Bohlin and Mr. W. C. Pei. Sir Arthur Keith gives a full and precise account of the remains of the Taungs ape, and a sober assessment of their significance, with which most anthropologists are likely to agree. As his detailed statement of the evidence and his judgement of its meaning are in complete agreement with the brief summary in my *Evolution of Man* (1927), it is hardly necessary for me to say more than repeat the verdict that *Australopithecus* is an ape akin to the chimpanzee and gorilla, and even more nearly to the extinct *Dryopithecus*, which reveals a more definite, if slight, approach to the human condition than any other known ape.

Sir Arthur devotes special attention to "The Lady of Lloyds," and expresses the opinion that this earliest

[1] *New Discoveries Relating to the Antiquity of Man.* By Sir Arthur Keith, M.D., F.R.S. London: Williams and Norgate, Ltd. 1931. (Pp. 512; 187 figures. 21s. net.)

known inhabitant of London deserves much more attention than I showed her in 1925 (*British Medical Journal*), and 1927 (*Evolution of Man*). I can only assure him that I share his opinion. Sir Arthur's suggestion that the Lloyds skull should be assigned to the Piltdown type, however, is devoid of any sort of justification. Some years ago Miss Dorothy Garrod convinced me that the geologists were in error when, in 1925, they refused to admit that the fossil was as old as the Mousterian. But while admitting its remote antiquity I fail to discover in the Lloyds skull any reasons for associating it in type with the Piltdown skull. The comparison is made plausible only by the fact that Sir Arthur still persists in using his old reconstruction of the Piltdown skull, which is obviously erroneous. No one can fail to recognize the medial part of the lambdoid suture on the fossil and even in Mr. Barlow's excellent casts, which are now exhibited in many museums. Yet Sir Arthur assumes (see his Figs. 154, 155, and 157) that this part of the suture is not present, but about a centimetre distant from the fossil parietal in his hypothetical restoration. The error created by this neglect of the clear anatomical evidence revealed in the fossil is still further exaggerated by his failure to recognize the median plane (which he has put some distance to the right of its true situation), and the mode of articulation of the parietal with the temporal bone. Hence there is a profound contrast between his conception of the Piltdown skull and the reconstruction I made (see my *Evolution of Man*, 1927, Figs. 17 to 24) to give proper expression to the facts of anatomy actually displayed in the bones. The true reconstruction of the skull reveals nothing whatever to justify the claim that the Piltdown skull resembles the Lloyds skull.

In his introduction Sir Arthur Keith confesses that he wants to reopen the Piltdown controversy. It is strange that this provocative challenge should be accompanied by his old diagrams revealing anatomical errors of which he cannot be ignorant. This persistence in error becomes all the more incomprehensible in the light of the discoveries in China, for the skull found near Peking on December 2nd, 1929, reveals in an exaggerated form (particularly in the view of the brain-case from behind) those bizarre features which in 1913 seemed so incomprehensible to Sir Arthur that he felt it necessary to disregard the sutures and make a monstrous big skull. In his otherwise excellent account of the Peking skull he omits all reference to this aspect of the new fossil, which more than any other factor confers exceptional importance on the Chinese discoveries.

Sir Arthur discusses several matters that have no direct relevance to the problems of the fossil remains of man. For instance, he gives us his views on the origin of agriculture. Without citing a single fact in justification, he says: "We must give it an antiquity of some 10,000 or 12,000 years" (p. 170). Moreover, "it is certain that a knowledge of agriculture was carried into Egypt." Claims such as these, which come into conflict with all the known facts, should not be made without evidence or argument in their support. Yet such speculations as Sir Arthur does make would, if admitted, be fatal to the acceptance of the statements just quoted. Thus he accepts at their face value the strange claims for the former existence in Egypt of a so-called "Badarian" phase of culture presumed to be older than the pre-Dynastic period. These "ancient dwellers in the Fayum," he proceeds to tell us, "had come by a knowledge of agriculture, while the cave people of Palestine had no such knowledge" (p. 230). In fact, there is no evidence anywhere in Asia of the practice of farming at all comparable in age to that attributed to the Badarians. Yet he asserts that "our modern civilization, which was made possible by the discovery of agriculture, was born in the south-western part of Asia," whence it "was carried into Egypt." This purely imaginary, and certainly fictitious, version is set forth without any reference of any sort to the body of decisive evidence, which is fatal to it, collected by Professor Thomas Cherry of Melbourne while he was serving in Palestine and Egypt with the Australian Medical Corps during the great war. I need not say more of Dr. Cherry's important researches here, because I have given in my book, *Human History* (Chapter VII), a full report of his evidence and conclusions, which in my opinion settle the question once for all. But, whether or not this is admitted, the facts cited by Professor Cherry cannot be ignored, as Sir Arthur Keith has done.

Surely the last two chapters must have been included by inadvertence? An interpretation of endocranial casts which leads to the conclusion "that a large brain was given to man, not that he might understand life, or circumvent difficulties, but simply to enjoy it," can hardly be meant seriously. Why also devote a whole chapter to "The discovery of *Homo gardarensis*," when Sir Arthur frankly admits that this individual of the new species was in fact a twelfth-century Christian afflicted with acromegaly.

In spite of these minor defects the book is an eminently useful guide to the recent advances in human palaeontology. It is as brilliant in exposition as it is entertaining in the telling of the story, and it gives just and generous acknowledgement to those adventurous anatomists Davidson Black and Raymond Dart, whose great achievements will always be regarded as outstanding events in the progress of the palaeontology of apes and men during the last decade.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN

The annual general meeting of the Society for Relief of Widows and Orphans of Medical Men was held on May 13th, when the president, Mr. Warren Low, C.B., F.R.C.S., was in the chair. The annual report for 1930 showed that the membership of 285 was composed of 160 life members, 124 ordinary members, and 1 honorary member. During the year six members had died, among whom was Sir Francis Champneys, a member of forty years' standing, a vice-president, and at one time an active member of the court of directors; seven new members had been elected. The annual grant was £75 to widows over 65 years of age, and £60 to those under 65, while each orphan under 15 years of age received £50; in addition, a Christmas present of £10 was made to each widow and orphan. The sum of £241 was also paid to six orphans who had reached the age of 16, to enable them to continue their education at school or to start some professional or business career. The expenditure in grants and presents amounted to £4,963, while the expenses were £350.

The society is a mutual provident benevolent association of medical men who at the time of their admission to membership are resident within a radius of twenty miles from Charing Cross. The invested funds of the society, which was founded in 1788 and incorporated by Royal Charter in 1864, exceed £140,000. The annual subscription of a member under 40 years of age is £2 2s., and after payment of three annual subscriptions his dependants become eligible for benefits; a single payment of £21 secures a life membership to a member under 30 years of age, with immediate eligibility of his dependants for benefits. Full particulars can be obtained from the secretary, 11, Chandos Street, London, W.1.

As an instance of the benefit of joining the society, attention is called in the report to the case of a widow who had been on the fund since 1917 till her death in 1930; she had received £925 in grants; her husband had paid £31 10s. in subscriptions.

Ireland

University of Dublin

The first John Mallet Purser Lecture will be delivered in the School of Physic, Trinity College, Dublin, on June 26th, by Sir Edward Sharpey-Schafer, F.R.S., professor of physiology in the University of Edinburgh, who has chosen as his subject "The new physiology." The lecture will be open to medical students and medical practitioners. This lectureship was endowed by Miss Sarah Purser, in memory of her brother, the late Dr. Purser, who devoted his life to the welfare of the School of Physic, where he taught for many years.

The usual three weeks' post-graduate course for general practitioners, which will be held this autumn from September 14th to October 3rd, will include clinical lectures in surgery, medicine, obstetrics, orthopaedics, laryngology, ophthalmology, and diseases of the skin. Laboratory instruction will be given each afternoon in the medical school in anatomy, physiology, pathology, and bacteriology. There will also be demonstrations on the use of the electrocardiograph and of radium, and lectures on medicine and therapeutics. Members of the classes will be accommodated, as far as possible, in the College rooms.

National Health Insurance (Irish Free State)

In moving the vote for National Health Insurance in the Dáil the Minister for Local Government and Public Health said that the Act of 1929 had enabled him to make some reductions in the cost of the headquarters staff, amounting to approximately £4,000. The cost of sickness benefit, however, had become so heavy that investigation was required to see how far the increase in this item was due to laxity in certification or increased illness, or to a combination of both. In 1927 the number of cash payments, excluding sanatorium benefits, was 638,596 ; in 1928, 652,833 ; in 1929, 681,051 ; in 1930, 713,662—an increase over the four years of 75,066, or 11 per cent. During the same period the number of medical certificates issued increased from 1,117,471 to 1,251,185. On the other hand, there was a steady growth in the number of insured persons and of the contributions paid by employers and employees. The contributions paid had increased from £509,500 in 1927 to £565,000 in 1930, an increase of 10.8 per cent. Sir James Craig (Dublin University), Dr. O'Dowd (Roscommon), Dr. Tubridy (Galway), and Dr. T. Hennessy (Dublin S.) took part in the discussion, and referred to the charges of lax certification and additional medical benefits for insured persons. In reply the Minister said that the weakness in medical certification was probably not due to the doctors. The difficulty was the indecision of doctors to put a person who had been in receipt of benefit back on the working list, but their certification of persons for two or three days had a material effect on the total amount of benefit to be paid.

Memorial to Dr. Arthur Dobbs, Athlone

Under the auspices of the Athlone branch of the District Nursing Association, a nurses' home, erected to the memory of the late Dr. Arthur Dobbs, medical officer of health for Athlone and district for thirty-eight years, was opened recently by Mrs. Homan Mulock, Bellair House, Ballycumber. At a public meeting held after the ceremony the Very Rev. Canon Crowe remarked that the provision of a comfortable home for the district nurse was the best guarantee for the continuance of the association. He congratulated all those who had contributed to the success of the enterprise, especially Mr. Burgess, founder of the local nursing association, and Mrs. Murtagh, secretary of the home, whose enthusiasm and devotion had been invaluable. Miss Colburn, superintendent of Jubilee Nurses of Ireland, said that there were nearly two hundred district nursing associations in the country, but many more nurses were needed. No one could assert that their nurses were overpaid, in view of the very high qualifications demanded of them. In regard to the pension fund for nurses, half the sum required to ensure a pension for every nurse in Ireland had been obtained; there was still, however, a deficiency of £10,000. Last year the owners of private gardens had raised £4,000 by charging visitors a small fee for admission. She hoped that these garden schemes, which were organized for the benefit of the association and of the pension fund, would be extended. Dr. H. O'Neill, county medical officer, Westmeath, pleaded for the foundation of associations in other parts of the county. A voluntary association, he said, apart from stimulating interest in health, could give great assistance in carrying out the special services concerned with maternity, child welfare, and school medical inspection. He wondered sometimes if they appreciated sufficiently their good fortune in having a supply of nurses from the Institute of District Nursing in Dublin. These nurses were not only qualified in medical and surgical nursing, but they were certified midwives, capable of advising expectant and nursing mothers, and trained to deal with the minor ailments of infants and young children. Above all, they were able to recognize when medical advice was necessary. In paying a warm tribute to the work of the late Dr. Dobbs, Dr. O'Higgins praised the magnanimous spirit of self-sacrifice and devotion that was consistently shown by district nurses in extremely arduous circumstances.

Armagh Mental Hospital

Dr. Dora Allman has been appointed resident medical superintendent of Armagh Mental Hospital, at a salary of £600 a year and emoluments valued at £150 a year. Dr. Allman has been assistant medical officer in the institution for thirty-two years. She is the first woman to be appointed to such a post in Ireland.

England and Wales

Pay-Bed Section, Royal Victoria Infirmary, Newcastle

The Royal Victoria Infirmary, Newcastle-upon-Tyne, has issued a descriptive pamphlet outlining the features of its pay-bed section, which has been opened to provide up-to-date hospital treatment for patients of moderate means. In order to save the time and expense of multiple consultations, the medical services, which are supplied by the visiting and consulting staff of the infirmary, have been organized as in the wards of a large general hospital, a single inclusive fee being charged at a substantially reduced contract rate. This team service is stated to be complete in all branches of diagnosis and treatment, and a resident medical staff is available as required. The paying patients occupy three pavilions running north and south, with a total accommodation at present of eighty-six beds. Balconies, which can be enclosed by collapsible fronts glazed with "vita" glass, look out on to airing courts between the pavilions. Each of these three wings has clothing and food stores, clinical laboratory, sister's room, ward kitchen, interview room, linen room, and necessary staff offices. The buildings have been fitted up on approved modern principles with entirely new equipment. Single bedrooms contain a wash basin with hot and cold water, mirror, wardrobe, side table, bedside lamp, and a wireless apparatus. Other features include electrocardiograph leads to each pavilion ; a fully equipped dark room for eye,

throat, ear, and nose cases ; a sterilizing room, centrally situated ; and two anaesthetic rooms. There are two main operating theatres with furniture and instruments of the latest type. The pamphlet is illustrated, and contains a list of regulations giving definite information about the conditions and cost of treatment. Patients are admitted only on the recommendation of a medical practitioner ; for the assessment of fees for maintenance and medical services they are graded in four classes according to their income. No provision is made for maternity cases.

The Middlesex Hospital and Cancer Wing

Prince Arthur of Connaught, chairman of the board of management, presented, on April 15th, his report for 1930 on the Middlesex Hospital and Cancer Wing. His Royal Highness said that since the last report the reconstruction scheme had been carried a stage further. Additional out-patient accommodation and certain special wards had been built, and there now remained two big pieces of construction before the original reconstruction scheme could be completed. For the first, the Woolavington paying patients' block, they had money in hand, but for the completion of the second approximately £245,000 must be found. To accomplish this task would necessitate the concerted efforts of everyone interested in the Middlesex Hospital. The new buildings occupied last year were the out-patient department in the annexe, the neurological and observation wards, the Bernhard Baron children's ward, and the new residents' house. The total bed capacity of the hospital, including the cancer wing beds, was 471 ; and during the year 6,751 in-patients had been admitted, the average cost of each patient per week being £5 4s. 1d., and the average stay 22.49 days. The number of new out-patients was 52,118. Although the expenditure for the year had increased, amounting to £129,966, they were left with a balance of £11,635, chiefly as a consequence of legacies. On the advice of the medical committee and the cancer and general research committee, a new department of clinical research in radium therapy had been set up in order to correlate the results of work done on cancer at home and abroad. By this means reduplication of inquiry would be avoided, and the whole body of knowledge of this disease would be available for all those concerned in its investigation. The hospital had received a further loan of 370 mg. of radium, and an increase in the annual grant from the British Empire Campaign. At the convalescent home at Clacton, 1,460 patients had been treated in the past year ; and the provision of an efficient nursing staff had made it possible to transfer patients in the early stages of recovery. This had enabled the hospital to meet growing demands for in-patient treatment. There had been a considerable increase in the work done in the infant welfare department. The hospital provided thirty-one resident appointments, and ten registrarships in medicine and surgery, which enabled men to work for three years at an adequate salary in the higher branches of their profession.

Mental Deficiency in London

The Mental Hospitals Committee of the London County Council has expressed its general agreement with the report of the Departmental Committee on Mental Deficiency (the " Wood " Report), and states that the main reason why so far there has not been an exhaustive overhaul of the patients in the London county mental hospitals, with a view to action under the Mental Deficiency Acts, has been the practical one that suitable accommodation in institutions for defectives has not been available to a sufficient extent to make such an overhaul worth while. Now that the Metropolitan Asylums Board's mental hospitals are coming under the Council's direction, and a " comb-out " of the Poor Law institutions is expected, it seems advisable that the population of the Council's mental hospitals should be subjected to an adequate review, and instructions have been given to that effect. With regard to the conclusion of the Departmental Committee, from figures submitted, that the number of defectives ascertained and provided for by local education and mental deficiency authorities is far smaller than it should be, the Mental Hospitals Committee strongly expresses the view that in London all that the law provides has as far as possible been done. It is also of opinion that the co-operation between the mental deficiency authority and other agencies exists in London to a degree as great as circumstances permit. Another suggestion from the Mental Hospitals Committee is that the recommendation of the Departmental Committee that defectives with incorrigible criminal tendencies and those suffering from a multiplicity of defect should be accommodated in institutions to be provided by the Board of Control ought not to be applied too rigidly in London so far as the " incorrigible " are concerned. At Farmfield, an L.C.C. institution where many of these defectives are placed, many apparently incorrigible lads have begun to amend. The Mental Hospitals Committee feels that the transfer of this institution to State control would hinder rather than help the problem of institutional care of defectives in London.

West London Hospital and the "Class Between"

A festival dinner was held in the Guildhall on May 12th to mark the seventy-fifth anniversary of the West London Hospital's existence, and also to make an appeal for funds on behalf of a scheme to solve the problem of the middle-class patient, as well as to improve the ordinary accommodation. Prince Arthur of Connaught, the president of the hospital, explained the purposes of the extension, already outlined in these pages (February 7th, p. 236). His Royal Highness said that for the past six years the hospital had provided accommodation in private rooms for twenty-six middle-class patients ; and it had now been decided to add a further seventy-four private rooms, making 100 in all. Hitherto £5 5s. weekly had been charged for a private room, but this had been subject to additions varying in amount for medical and surgical fees and the cost of special treatments. Owing to the generosity and kindness of the honorary medical and surgical staff, to whom most grateful thanks were due for their valuable co-operation, a plan had been evolved for a flat-rate weekly payment, beginning at £7 7s. and increasing according to the patient's ability to pay. This fee would be inclusive, so that the patient would know in advance his periodical liability. He believed that this scheme had never been tried in England before, and that it was a great step forward in dealing with middle-class patients who could not afford the charges in nursing homes and the fees of private specialists. The hospital was also improving its ordinary wards, and remodelling its main frontage to make larger provision for the ever-increasing number of casualties, for the pathological laboratories, and for the *x*-ray and electrical departments. Mr. Winston Churchill, who was the principal guest, said that the community had had many burdens to face of recent years, but it had steadily maintained its system of help for the suffering. A very large part of our population was now provided for under the National Health Insurance Acts and other social legislation. At the opening of the present century, though there was much voluntary provision, there was no State provision ; but the last twenty years had seen a system of insurance—contributory certainly, but also State-aided—come into being to deal, if not adequately, at least more comprehensively than in any other country with sickness and disease among great

masses of the people. Mr. Churchill believed that British social institutions had played a great part in mitigating the rancour of industrial disputes, in enabling the nation to emerge at least as well as any other from the stress of the war, and in making this country, in spite of everything, the best in which duke or dustman could live. These provisions for the wage-earning population, however, left untouched the black-coated man, the member of the upper section of the middle class, of the intelligentsia, which was essential to the life of the nation. He therefore commended the effort made by the West London Hospital, within the limits of its own organization, to fill the gap and meet a crying need.

Correspondence

THE NEW ZEALAND EARTHQUAKE

SIR,—The account of the New Zealand earthquake in your issue of May 16th is most interesting, and must have filled all your readers with pride at the action of Dr. Biggs and his staff. The manner in which they dealt with an unprecedented situation was worthy of the best traditions of British pluck, and I am sure every one of us, your readers, is proud of his profession and of that of the nurses. All showed not only great courage and determination, but also skill and ability in coping with the very difficult position in which they found themselves. I think we should all like Dr. Biggs and those associated with him to know how much we appreciate their remarkable achievement.—I am, etc.,

Hove, May 18th. L. A. PARRY.

OBSTETRIC SHOCK

SIR,—It may be hoped that Dr. Phillips's most valuable paper in the *Journal* of May 16th (p. 833) will draw attention, not only to the importance of emotional shock in bringing about obstetric shock, but to that of preparturient psychological situations in modifying the course and event of parturition and the puerperium. It is "not enough," however, to recognize that anxiety, worry, and so forth are "contributing causes" or "play an important part" in the bringing about of untoward happenings. Every general practitioner knows, or should know, as much as that.

Modern psychology, it should be clearly understood, has made real progress in analysing, classifying, or "typing" the kinds of situation that tend to be followed by certain kinds of reaction. So much is this the case that a physician who is not altogether unacquainted with certain modern psychological trends may, not without justification, be sometimes a little impatient when an illness, evidently to him expressive of a patient's mood, is considered by a colleague to have an explanation in terms of biochemistry, or even of endocrinology. Whatever we may think of Dickens as a portrayer of character, probably no writer of fiction—not even Guy de Maupassant—has ever been a finer observer of life situations than he; and, in the opening chapter of *Dombey and Son*, he has given us an imperishable record of the kind of way in which the first Mrs. Dombeys of the Victorian world "reacted" to the marital situations created for them by the Dombeys themselves—a race not yet extinct. Such deathbeds as those of the first Mrs. Dombey are perhaps rarer than they were, even thirty or forty years ago. But they still may be witnessed, and strong-minded Louisas still urge the patients to "make an effort," just as hearty young doctors from our athletic hospitals think they are practising psychology when adjuring their dying invalids to "buck up."

Dickens, indeed, affords us very many obstetrico-psychological pictures of the highest import—the death of the mother of David Copperfield is one of much the same type as the death of Mrs. Dombey. And there are other vignettes no less valuable. The Royal College of Physicians several years ago ceased to require—as some think, unfortunately—any evidence of even nominal acquaintance with the great sources of humane, as distinguished from scientific, knowledge, at the hands of candidates for membership. But we have now a College of Obstetricians and Gynaecologists, and perhaps that learned body might do worse than test the humanities of its young men by examining them in the works of Dickens, and calling for commentary on selected passages!

Sir John Rose Bradford has just impressively reminded us that our medical studies must not be confined to the laboratory; but even clinical or bedside study, in addition, is "not enough." Human medicine, which embraces psychology no less firmly than it does biochemistry and post-mortem research, cannot be learned unless studies are pursued in the market-place, or even, as Sydenham well knew, in the window-seat of a tavern. The best and truest of modern psychologies has been so learned. But the extent to which it has developed and to which it is applicable at the bedside and in the lying-in wards seems to be almost unknown to those who still hope to discover the secrets of life in the deadhouse.—I am, etc.,

London, W.1, May 16th. F. G. CROOKSHANK.

DETACHED RETINA

SIR,—Now that the so-called "Gonin's operation" for detachment of the retina is being done all over the British Isles, and, one may say, wherever ophthalmic surgery is done, I feel that it is of great importance that medical men should realize what a benefit it is if cases of detached retina are sent immediately to the nearest ophthalmic hospital or ophthalmic surgeon. I feel that I cannot do better than quote a small part of the latest paper written on Gonin's operation by Dr. Mark Amsler of Lausanne, in the *Klinische Monatsblätter für Augenheilkunde*, (January, 1931, vol. 86).

"But the indications will become more and more extended, and the prognosis of the operation will be better and better, if the patients start treatment as soon as possible under an ophthalmic surgeon—a knowledge which must become extended among the public, exactly like the conviction that only the immediate operation in acute appendicitis, with the fear of perforation, or in extrauterine pregnancy, can save life.

"In this sense medical men and patients must come to an understanding, and under this condition Gonin's thought will develop into a general beneficent act of healing, whose final form, without doubt, is not yet discovered; rather more, it will be further perfected in method and technique by all ophthalmologists."

—I am, etc.,

London, W.1, May 13th. J. COLE MARSHALL.

FRACTURES OF THE LONG BONES

SIR,—I have read with great interest Mr. Fagge's letter, in which he states that my reading of his remarks on the treatment of supracondylar fracture of the humerus was wrong, and that my interpretation of his writing was exactly the opposite of what was intended, and of what the words conveyed. In these circumstances I must at once apologize to Mr. Fagge, but I can assure him that, although a re-reading of the article now makes the meaning clear, I am by no means the only reader who obtained the wrong impression. His letter, however, raises interesting issues which will repay consideration, and I feel certain we may profitably study it with care in an effort at least to clear up some of the points of importance.

Mr. Fagge tells us that he can recall only one case of ischaemic contracture in his ward during the last ten years. This is stated to have been put up at once in full flexion—probably following on a fracture. This may well have been so, but can Mr. Fagge recollect sufficiently clearly after this interval, or can he get from his notes or his *x*-ray photographs the very important point as to whether or not the fracture was completely reduced? Similarly, in regard to the half-dozen cases he has seen at Examinations, he states that in none does it appear that malposition—that is, failure of reduction—is a marked feature. Surely this is not the point. Can Mr. Fagge state that in any one of these cases there was a complete reduction of the fracture? It is because supracondylar fractures of the humerus are generally oblique that the rectangular position of the elbow will not retain reduction. Many experiments have been carried out on this matter, but perhaps the fullest series are those reported by Ashhurst in his *Anatomical and Surgical Study of Fractures of the Lower End of the Humerus.* Here we find that a very lengthy and careful series of experiments confirms the clinical findings of surgeons generally that the fuller flexion of the elbow after reduction of a supracondylar fracture is the ideal position of retention. In this position of flexion the coronoid process of the ulna comes into the coronoid fossa, and effectually steadies the lower fragment on its anterior aspect, whilst the tense triceps tendon, lying closely against the posterior aspect of the shaft and fragment, acts as an efficient splint and retains the fragment in position—just as the tense capsule of the hip-joint retains the fractured neck of a femur in alignment when the hip has been placed in a position of abduction and internal rotation. Splints are undesirable in the treatment of a supracondylar fracture, necessitating as they do circular compression, and neither are they any more effective than the right-angled position in preventing lateral movement.

When Mr. Fagge goes so far as to say that after accurate reduction of the fracture it does not matter whether the elbow be fixed at an angle of 30 degrees, 90 degrees, *or more* (the italics are mine), I feel that his advice is positively harmful, because the ordinary oblique supracondylar fracture of the humerus cannot, and does not, stay reduced when put up in this last position.

In the concluding paragraph of his letter Mr. Fagge suggests that I should in future examine and report upon the stability of the elbow, both at an angle of 30 degrees and of 90 degrees, under the *x*-ray screen. This I have often done, and can assure him that the stability is much more marked in the more flexed than in the rectangular position. I would suggest, however, that the movement he advises—namely, that of flexion and extension—is but a very poor test. The movement that matters is backward and lateral displacement of the forearm. If this, which is obviously the only true test, is made, Mr. Fagge will no longer advocate the rectangular fixation.—I am, etc.,

Liverpool, May 18th. T. P. McMURRAY.

FRACTURES OF THE NECK OF THE FEMUR

SIR,—The excellent article by Sir Robert Jones on fractures of the neck of the femur, published in the *Journal* of May 9th (p. 781), must surely convey a new optimism to many who have previously regarded such fractures in the aged with undue hopelessness. A favourable prognosis in 75 per cent. of all cases is a very different result from the high mortality rate which resulted from the old sand-bag method.

I have at present under my care an old lady, aged 84, who slipped and fell on the floor on September 3rd, 1930, sustaining a fracture of the neck of the left femur. Although no *x* rays were available, all the typical signs of a fractured neck were present—namely, adduction, shortening, external rotation, and loss of power. She refused to go to hospital, so extension was applied, the limb abducted and the foot internally rotated. Unfortunately the old lady would not tolerate this position for more than a week, and owing to her refusal to take any nourishment while so "trussed up," the bandages had all to be removed, and only extension could be maintained. Result—an un-united fracture with adduction and external rotation, but a healthy return of appetite at once.

On the morning of April 3rd, I received an urgent call to see her again. She had tried to get out of bed herself and had fallen and hurt her other thigh. On examination I found that she had a fracture of the right femur at the junction of the lower and middle thirds. This was reduced and fixed in plaster, an operation to which she submitted with very bad grace. She had recovered her appetite again in three days, but could not resist trying to get the plaster off. At the end of four weeks she had so loosened the plaster case that it had become useless, and on removing it I found that the fragments were well united. She refused to allow me to apply another plaster case, the best I could do being to apply lateral splints and maintain them in position with elastoplast bandages.

It seems now that if the old lady will allow me to try to correct the adduction of the left leg, the application of a walking calliper splint may enable her to leave her bed and resume her place as a comparatively active member of the family.—I am, etc.,

Upholland, May 13th. J. E. T. SHIRLAW.

SIR,—With reference to Sir Robert Jones's article on fractures of the neck of the femur in your issue of May 9th, I note that in two places (p. 782, col. 1, under "Diagnosis," and p. 783, col. 2, under "The old un-united case") the signs and deformities typical of a fracture in this situation are described respectively as (*a*) *adduction*, shortening, and external rotation, and (*b*) ". . . flexion of the thigh, *adduction*, rotation outwards . . ." I have always been taught that the classical signs of a fracture of the neck of the femur are shortening, *abduction*, and eversion of the limb on the affected side. I should therefore be grateful if this apparently divergent view—if I have read the article correctly—could be elucidated.—I am, etc.,

London, May 11th. C. S.

CORONARY THROMBOSIS AND MYOCARDIAL INFARCTION, WITH GLYCOSURIA

SIR,—The letters of Dr. Cruickshank and Dr. Tytler Burke on this subject are interesting, because they represent two schools of thought which are bound to come into conflict before long. Dr. Burke rightly attributes the syndrome to syphilitic infection because he can demonstrate microscopically every step in its development. Dr. Cruickshank deplores this inclination to blame the *Treponema pallidum* for the lesions while other etiological factors are apt to be ignored. He mentions two—alcohol and tobacco—and syphilologists have a right to ask him to demonstrate microscopically the steps from poisoning with alcohol or tobacco to fully developed coronary thrombosis. When he does this he can claim for alcohol and tobacco the same well-founded position in the etiology as is enjoyed by syphilis.

Medical students are still taught, and their teachers must be assumed to believe, that alcohol, lead, syphilis, and gout are equally responsible for a mass of indefinite chronic degenerations. This is a Victorian tradition, born in an age too respectable to believe that a "filth" disease could possibly be responsible for many of its

woes. When Dr. Cruickshank joins Dr. Hurst in deploring the tendency to fall back on syphilis in any diagnostic uncertainty, he forgets that the uncertainty is an attribute of alcohol, tobacco, lead, etc., and that nothing is more certain or better established in medicine than the microscopical pathology of syphilis.—I am, etc.,

Carnarvon, May 17th. GRIFFITH EVANS.

A BARBER-SURGEON'S INSTRUMENT CASE

SIR,—The sixteenth century case for surgical instruments, so well described by Mr. C. J. S. Thompson in your issue of May 9th (p. 811), ought surely to be preserved in the Museum of the Royal College of Surgeons in Lincoln's Inn Fields, for it is the gift of a king to an English surgeon. The price at which it would be sold is easily ascertainable, and if this were reasonable every effort ought to be made to buy it. I would for my own part gladly subscribe five guineas towards a fund for the purpose.—I am, etc.,

London, W., May 18th. D'ARCY POWER.

SPINAL ANAESTHESIA

SIR,—I should like to add my thanks to Mr. A. Wilfrid Adams for his contribution on spinocain, published in the *Journal* of May 9th (p. 785). As a result of a chance communication with Professor Burgess of Manchester some time ago, I have used spinocain in some hundreds of cases at the two hospitals in Bradford, and I can endorse almost entirely the conclusions arrived at by Mr. Adams. I have, however, despite various trials with body tilt, been unable with the 2 c.cm. ampoule of spinocain to obtain satisfactory anaesthesia and relaxation for abdominal operations in the region of the diaphragm. On inquiry I find this is the experience of others. I also learn that Pitkin himself finds a bigger quantity (3 c.cm.) necessary for such high operations. If this is true, and 3 c.cm. can be safely given with a suitable body tilt, it is a very important addition to our knowledge. I should like to know the experience of others on this point.

An important complication mentioned by Mr. Adams has interested me—namely, temporary paralysis of the external rectus muscle of the eye. This has happened in two of my "spinocain cases" operated on for acute appendicitis; they both had occupied the same bed in the hospital, which made us think of external causes, and each took four weeks to recover.—I am, etc.,

Bradford, May 12th. BASIL HUGHES.

SCHISTOSOME WORMS AND SCHISTOSOME MONSTERS

SIR,—In suggesting, in your issue of May 9th (p. 817), that Dr. M. Khalil, in his recent *Bibliography of Schistosomiasis*, is the first to err in classifying the papers of purely teratological interest by Eisenbarth and Notter as helminthological, Professor Leiper is perhaps a little unfair. Dr. Khalil has erred in good company.

The reference to R. Eisenbarth's paper "Ein Fall von *Schistosoma reflexum*" (*Wochenschrift für Tierh. u. Viehzucht*) was given by those doyens of medical bibliography Drs. Robert Fletcher and Fielding H. Garrison under the heading "Diseases due to Parasites (Animal and Vegetable)" in the *Index Medicus* (1908, p. 720), and also appeared under the heading "Schistosomiasis [Katayama disease]" on page 205 of the *Index-Catalogue of the Library of the Surgeon-General's Office, U.S. Army*, (1910, second series, vol. xv).

C. Notter's paper "Schistosomen beim Schwein" (*Virchow's Arch. f. path. Anat.*) appeared with the translation "Schistosomiasis in pigs" under the heading "Schistosomiasis" on page 1125 of the *Quarterly Cumulative Index Medicus* (1927, vol. ii), issued under the joint auspices of the American Medical Association and the Surgeon-General's Library, and in *Biological Abstracts*, (1929, vol. iii, p. 1367), under the heading "Parasitology (Animal)."

Medical bibliography is beset with pitfalls. It would be hard if Dr. Khalil should be held entirely responsible for one that had been dug by others.—I am, etc.,

St. John's Wood, N.W., May 11th. R. L. SHEPPARD.

ACIDOSIS AND SEBORRHOEA

SIR,—I was interested to read in your issue of May 16th (p. 839) that Drs. Ingram and Fowweather had been unable to find any evidence of the presence of acidosis in persons subject to seborrhoeic disorders, because I am able to confirm their findings in a few typical cases referred to me by Dr. H. W. Barber in 1923. Seven cases only were investigated, and in all the plasma bicarbonate, estimated by the method of Van Slyke, Stillman, and Cullen (*Journ. Biol. Chem.*, 1919, xxxvii, 167), was normal. The mean value obtained was 0.033 molar, the highest being 0.036 and the lowest 0.032 molar. All the cases were males. There was therefore no evidence of acidosis in this small series. The urine was not investigated, and I have no experience of the treatment of this condition.—I am, etc.,

London, W., May 17th. A. ARNOLD OSMAN.

CANCER AND RACE

SIR,—Dr. M. Sorsby, whose book is reviewed in your issue of May 9th (p. 800), can certainly be congratulated on completion of a useful and original piece of work. But is he justified in his insistence on the importance of the Mosaic law of sexual hygiene? If that were so, then the *puella publica* would be the greatest sufferer from carcinoma of the uterus; but, as far as my knowledge goes, she is not. For every form of carcinoma, and in any part of the body, chronic irritation and trauma are the predisposing factors. Gonorrhoea was notoriously rare among the strictly orthodox Jews; with relaxation of the religious influence the Jewish communities show the same amount of sexual laxity as their Christian neighbours—hence the increase of gonorrhoea, with chronic cervicitis, endometritis, etc. I still remember the wise words of Fritsch, that "without gonorrhoea there would be no gynaecology." As a general formula it may be exaggerated, but there is a great deal of truth in it.—I am, etc.,

London, E.1, May 11th. N. PINES.

IMMUNIZATION AGAINST VACCINIA

SIR,—We have to thank Dr. Bland for drawing our attention to an error in our paper published in your issue of May 2nd. In the last paragraph but one of the protocol, published on page 741, "Rabbit 118" should obviously read "Rabbit 119," and vice versa.—We are, etc.,

Wellcome Bureau of Scientific Research, London, May 16th. G. M. FINDLAY, E. HINDLE.

DIET AND THE TEETH

SIR,—In Part II of my report, "Diet and the teeth: an experimental study" (Medical Research Council Special Reports Series No. 153), I referred to a paper entitled "A histological investigation into 'so-called pyorrhoea alveolaris,'" published in the *British Dental Journal* of 1927. I regret that in giving the names of the authors I omitted to include that of Dr. Arthur Counsell, who collaborated with Mr. W. Warwick James.—I am, etc.,

Sheffield, May 15th. MAY MELLANBY.

Medico-Legal

ETHER-OXYGEN ANAESTHETIC FATALITY

An inquest was held by the Birmingham coroner, on May 12th, on the body of a man, aged 60, who died in unusual circumstances at the General Hospital, Birmingham, on April 20th.

On April 15th, in the course of an operation for dilatation of a cancerous growth of the oesophagus with insertion of radium, and while the surgeon was withdrawing a small pencil light, an explosion occurred in the patient's mouth, and the Shipway apparatus delivering the anaesthetic exploded and burst into flames. The Shipway apparatus was connected to a cylinder of oxygen, and the gas was passed through it to a rubber tube inserted in the patient's nostril and fitted to an intratracheal catheter. Induction was by means of ether (1 part) and chloroform (2 parts) mixture—open method—and when the apparatus was first used a mixture of oxygen, chloroform, and ether was given, but at the time of the explosion and before the lamp was inserted into the mouth the apparatus was set to cut off all ether, and to deliver only chloroform and oxygen. It was admitted, however, that a small quantity of ether vapour may also have been passing to the patient. The pencil light was fitted with an ordinary commercial type Osram 3½-volt metal filament lamp, screwed into the lamp holder, and the lighting current was derived from a 4-volt accumulator situated outside the operating theatre and connected to the lamp by flex insulated wire over 20 feet in length.

Professor G. Haswell Wilson, who made a post-mortem examination, said that there was extensive bruising of the pharyngeal mucous membrane, especially round the rima glottidis. There was a ragged tear in the mucous membrane of the left pyriform fossa 3/4 inch in length, with underlying tissues infiltrated with pus. There were haemorrhages beneath the mucous membrane of the epiglottis. The mucous membrane of the trachea and larger bronchi was covered with a thin layer of fibrinous exudate and bathed in pus. The bronchi were intensely congested, containing a large amount of a foul-smelling pus. The substance of the lungs was oedematous, with some areas of early pneumonia towards the base. A cancerous growth was found behind the cricoid cartilage, 1¼ inches in length, encircling the lumen of the oesophagus, with marked narrowing. "The changes in the lung were those of intense inflammation of the bronchial tree, with decomposition of the inflammatory exudate. The fact that the inflammation of the bronchi was extreme while there was but little evidence of pneumonia suggested that the lung tissue had not been damaged to any extent in the first instance. From the history of the case it is probable that the mucous membrane of the trachea and the bronchi had been extensively damaged by heat with subsequent putrid bronchitis as a cause of death."

It was established that the explosion first occurred in the patient's mouth, and from there was transmitted along the rubber tube to the Shipway apparatus. The cause of the explosion was attributed to defective contact between the lamp and the holder, thus causing a spark. Experiments conducted by Dr. Morgan (who was a member of the committee to report on "risks associated with electric exploders in coal mines" to the Department of Mines) demonstrated that while a spark from a 4-volt accumulator failed to explode ether vapour mixed with air in explosive proportions (volume of ether 2.9 to 7.5, volume of air 97.1 to 92.5) an explosion readily occurred in mixtures of oxygen and ether. The current consumption of the lamp in use when full on was 0.3 ampere. A current of 0.25 ampere was sufficient to cause ignition readily, and his experiments led him to the conclusion that any spark, however small, must be regarded as highly dangerous in an ether-oxygen mixture.

ALLEGED FRAUDULENT MISREPRESENTATION BY MEDICAL ADVISER

In the King's Bench Division, before Mr. Justice Horridge and a special jury, on May 11th and four following days, the claim was heard of Mrs. Ada Ann Oliver of Hotel Somerset, London, W., against Dr. Ernest Snowden of New Cavendish Street, W., for damages for alleged negligence, alleged breach of duty as medical adviser, and alleged fraudulent misrepresentation. All the charges were denied.

Sir Patrick Hastings, K.C., who appeared for the plaintiff, said that Mrs. Oliver had suffered from a nervous complaint, and her general practitioner had advised her "to consult a psycho-analyst." Dr. Snowden, a psychologist, attended her from February, 1928, until the autumn of 1929. The fees for that period amounted to £1,350. Dr. Snowden was a director of a sulphur mining company which had been in suspended animation for some years, though apparently it hoped to acquire wealth from sulphur deposits in Nisiro, in the Eastern Mediterranean. Dr. Snowden told Mrs. Oliver of this company, stating that it was a new one, that it owned valuable sulphur mines, and was likely to pay large dividends. In July, 1928, he persuaded her to purchase 4,000 five shilling shares.

Mrs. Oliver, in evidence, said that she was instructed by Dr. Snowden as part of the treatment to tell him everything about herself. He always had the blind down so that she could better concentrate and subordinate her will to his. She told him that she had £3,000 or £4,000 on deposit, and when he described the prospects of the sulphur company she asked her husband to write the cheque for £1,000 (at that time she had been in bed for about nine months, and was unable to write a cheque herself). She had never received any part of the money back, or any dividend in respect of it, though she had asked Dr. Snowden "hundreds of times." In cross-examination, she said she was grateful to Dr. Snowden for his treatment, and had confidence in him until this occurrence. She admitted that on January 1st last she wrote begging Dr. Snowden (whom she had then not seen for fourteen months) to visit her, saying, "You cannot imagine the happiness it will bring me." She was a very sick woman, and felt that he could still help her with his psychological treatment. On her remarking that Dr. Snowden was a psychologist, not a psycho-analyst, the judge said that he did not know the difference, and Sir Patrick Hastings added, "I do not know which is the worse."

Mr. Doughty, K.C., for the defence, said that Dr. Snowden was practising with considerable success a serious branch of medical science, and the treatment of Mrs. Oliver had had very good results. He had talked to Mrs. Oliver about various matters to get her interested, and, discovering her interest in business affairs, he told her about the sulphur mining company. She said that she would like to invest. Realizing how undesirable it was that he should have anything to do with the financial affairs of a patient, he endeavoured to dissuade her, and, finding that impossible, suggested that she should invest no more than £200; but she insisted, and her husband, to whom he also appealed, said she was to do as she wanted. After the money had been paid, it was discovered that the owner of the concession in the Mediterranean was giving trouble, and the company was brought to a standstill, but Mrs. Oliver continued on friendly terms, and there was no suggestion of fraud until the writ was issued.

Dr. Snowden, in evidence, said that he was psychologist to the Hospital for Epilepsy and Paralysis, Maida Vale, and assistant in the psychological department, St. Bartholomew's. He did not practise as a psycho-analyst. Mrs. Oliver was suffering from acute anxiety and obsessional fears, of which he endeavoured to discover the original cause. It was no part of his treatment to discover the extent of her private banking account. In cross-examination, Dr. Snowden said that he became a director of the company in May, 1928, at which time it had no assets, but a series of agreements existed by which the company was to acquire concessions to work the sulphur mines in Nisiro. He was closely cross-examined on some of the proceedings of the company, and said that he knew nothing about business matters, and simply did what he was instructed or advised to do. He would not agree that at the time Mrs. Oliver paid the money she was in a serious mental condition, but it was necessary for him to attend every day, because, if he did not, she became anxious and worried. Corroborative evidence on certain points connected with the affairs of the company was given.

The jury returned a verdict for the defendant, but added the rider: "We desire to say we feel that the defendant was unwise in receiving from his patient money for a concern in which he was interested." Judgement was entered for Dr. Snowden on the claim, and also on a counterclaim of 72 guineas (fees for twenty-four visits), together with costs.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Registration and Regulation of Osteopathy Bill was withdrawn on May 12th, having failed to secure a second reading.

The House of Commons took the second reading of the Finance Bill this week, and also debated the Representation of the People Bill and the vote of the Foreign Office.

During the debate on the Finance Bill, on May 13th, Sir Stafford Cripps, Solicitor-General, said it was impossible to exempt from the land values tax land held by colleges and hospitals.

The Sentence of Death (Expectant Mothers) Bill was reported to the House of Commons with amendments from a committee on May 14th.

The second reading of the Pharmacy and Poisons Bill was set down by the Government for May 15th in the House of Commons, but the discussion on it was postponed by agreement. On the previous day a deputation of members, including Dr. Salter and Mr. Somerville Hastings, had met Mr. Short, Under Secretary for Home Affairs, to consider the suggestions made by the pharmacists for amending the Bill. The postponement of the Bill followed.

In the House of Commons, on May 18th, the London Squares Preservation Bill was read a second time.

The text of the Proprietary Medicines Bill was issued on May 18th, and is reproduced in the *Supplement* this week at page 203. This Bill does not apply to Scotland or Northern Ireland.

Miss Lawrence told Mr. Haydon Jones, on May 19th, that, owing to the state of business, the Government could not introduce legislation this session to give effect to the recommendations of the Select Committee on Patent Medicines, which was issued in 1914.

In the House of Lords, on May 19th, the Workmen's Compensation Bill was read a second time.

Lotteries for Hospitals

On May 19th Sir W. DAVISON asked leave to introduce the Hospitals Lotteries Bill, to authorize the raising of money by means of lotteries for the support of hospitals. He said that he had sent to the Home Secretary a memorial signed by seventy members of the House asking him to take this matter into consideration. He had also furnished Mr. Clynes with the results of a questionary recently sent out by the Special Appeals Committee of St. Bartholomew's Hospital to some thousands of representative people, including supporters of the hospital. The result to date was that 3,125 persons were stated to be in favour of a lottery for the hospital, and only 61 were against. Meanwhile nothing was being done, and British hospitals were in the greatest need of funds for building, equipment, and maintenance. He was aware that a number of members of the House of Commons considered that hospitals should be a charge upon the State, but even they must surely realize, in view of the statements of the Chancellor of the Exchequer in presenting his Budget, that it was not practical politics in present financial conditions to provide State money for hospitals in the immediate future. The chairman of a large hospital, in a letter to the *Times*, pointed out that hospitals were being seriously prejudiced by the uncertain state of the law in regard to this matter, and that they were losing subscriptions, both from those in favour of and from those opposed to lotteries. That supported the view that it was time this uncertainty of the law should be ended, at any rate so far as hospitals were concerned. Immense sums had been raised in Dublin in aid of the Southern Irish hospitals. The Bill did not attempt to modify or remove the many anomalies relating to lotteries, raffles, and sweepstakes. It was a short, permissive measure, which left the law as it stood until such time as the Government were in a position to deal with it. The Bill provided that, notwithstanding anything in the existing law, a lottery might be held under regulations to be approved by the Home Secretary for the benefit of British hospitals something on the lines of the Irish Free State hospitals lottery, but with improved regulations as a result of experience gained in the conduct of that lottery.

Mr. FOOT opposed the Bill, which, he said, could not be limited to hospitals. If a lottery was right for hospitals, it was right for the blind, for orphanages, and for every beneficent enterprise—national and municipal. This was a charity lottery which would not achieve its purpose, but would dry up the sources of charity. A short time ago the Earl of Onslow, at one time chairman of the Voluntary Hospitals Commission, wrote to the *Times* setting out his reasons for condemning this proposal as disastrous to the financial interests of the hospitals of this country. The same opinion was given by the chairman of the Royal London Ophthalmic Hospital, and by Sir Arthur Stanley, treasurer of St. Thomas's Hospital.

Leave to introduce the Bill was refused by 181 votes to 58.

Deaths from Cancer

On May 8th Mr. FREEMAN asked Mr. Greenwood the percentage increase or decrease in deaths from cancer each year since the Imperial Cancer Research Fund was started, taking the figures for the first year as a basis. On May 14th Mr. GREENWOOD replied that he could not answer the question in that precise form, but he could give the percentage increase which had been in the certificates of cause of death classified to cancer in England and Wales in each of the years from 1903 to 1930, compared with the number of deaths registered and so classified in the year 1902. The figures were: 1903, 4.37; 1904, 6.49; 1905, 8.43; 1906, 13.62; 1907, 13.90; 1908, 17.38; 1909, 22.18; 1910, 24.16; 1911, 28.81; 1912, 33.91; 1913, 39.71; 1914, 41.78; 1915, 42.96; 1916, 45.77; 1917, 47.67; 1918, 47.92; 1919, 51.21; 1920, 56.74; 1921, 65.12; 1922, 68.28; 1923, 74.61; 1924, 80.79; 1925, 86.35; 1926, 90.94; 1927, 94.02; 1928, 101.83; 1929, 104.13; 1930, 107.67 (based on provisional figures).

Milk

Answering Captain Peter Macdonald, on May 14th, Mr. GREENWOOD said that samples of imported dried and condensed milks were taken both at the time of importation and at the time of exposure for sale. These were examined by the Government chemists and the public analysts to ascertain whether the requirements of the regulations on composition and labelling were observed. These regulations required that if fat had been removed from the milk from which the dried or condensed milk is made the fact must be clearly declared on the label. If any constituent of natural milk, other than water or fat, were removed the product would not fall within the definition of dried or condensed milk. He saw no need for legislation on the subject.

In a further reply to Captain Macdonald, on May 14th, Mr. GREENWOOD said that in consultation with Dr. Addison he was considering the introduction of legislation to regulate the production and sale of milk with a view to reducing the incidence of bovine tuberculosis in human beings.

Answering Dr. Fremantle, on May 14th, Mr. GREENWOOD said the Ministry of Health memorandum on bovine tuberculosis in man had been published as a non-parliamentary paper, and was available to M.P.'s on application.

Animal Experiments.—On May 15th Mr. Freeman asked who, in experiments on living animals, decided whether the experiment was calculated to give pain; and if the performer was the only judge. Mr. CLYNES answered: In this Act, as in all others, people have to consider for themselves whether what they propose to do is in accordance with the law; but if they infringe the provisions of the Act they are liable to have legal proceedings taken against them, and the court decides whether the experiment is or is not calculated to cause pain. Experience shows that people who propose to perform experiments which might by any possibility be regarded as calculated to cause pain are anxious to comply with the requirements of the Act in order to be on the safe side.

Infant Mortality.—Mr. Greenwood reports that, according to the most recent available returns, which are those for 1926–30, Paddington, Stepney, and Shoreditch are the metropolitan boroughs with the highest infantile mortality rates.

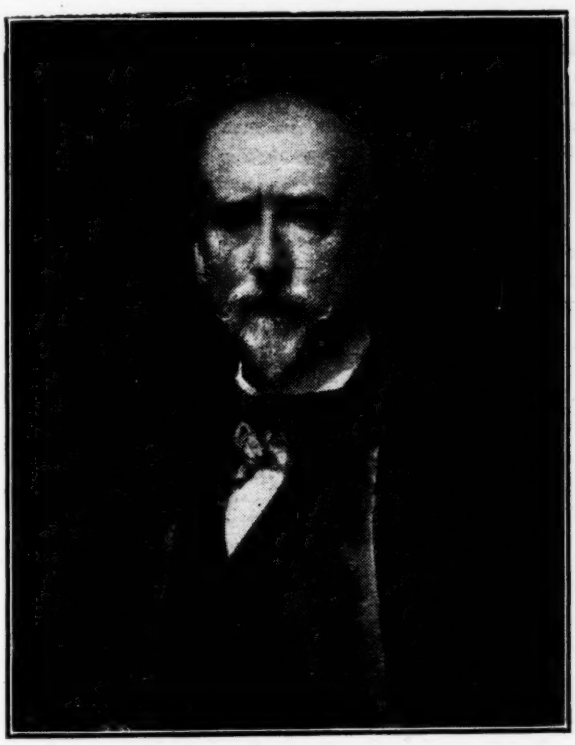
Obituary

T. R. GLYNN, M.D., F.R.C.P.

Consulting Physician, Royal Infirmary, Liverpool; late Professor of Medicine, Liverpool University

As briefly recorded in last week's *Journal*, Emeritus Professor T. R. Glynn died on May 12th, at his residence, near St. Asaph, in North Wales. He was in his ninety-first year.

Thomas Robinson Glynn, son of Edward Dashper Glynn, a Liverpool shipowner, was educated at Liverpool College, and studied medicine at St. Bartholomew's Hospital and in Paris. He graduated M.B. at the University of London in 1865, taking the M.D. in 1879. Elected a Fellow of the Royal College of Physicians of London in 1882, he was appointed Lumleian Lecturer in 1903, Councillor in 1907–9, and Bradshaw Lecturer in 1913. He was president of the Liverpool Medical Institution in 1892 and 1893, and president of the Association of Physicians in 1910.



Soon after settling in Liverpool he was appointed assistant physician to the Children's Hospital, physician to the Northern Hospital, and in 1871 physician to the Royal Infirmary, passing on to the consulting staff in 1901, when he reached the retiring age. Other appointments were: chief medical officer to the Royal Insurance Company and examiner for others; medical officer to H.M. Customs; and for many years consulting physician to the Woolton Convalescent Hospital, the Hoylake Cottage Hospital, the Liverpool Dental Hospital, and physician to the Catholic Blind Asylum. Though he had bought a general practice, this work was soon given up, and a large and widely spread consulting practice in Lancashire, Cheshire, and North Wales was built up and held for fifty years.

Dr. Glynn was lecturer in medicine at the Royal Infirmary School of Medicine—one of the band of distinguished teachers (Mitchell Banks, Richard Caton, Alexander Davidson, William Carter, Rushton Parker) that gained for the school a high reputation. They played a large part in the foundation of University College in 1881, Glynn becoming the first professor of medicine (1884–1922). His published work deals with many subjects, perhaps the most notable being the Lumleian Lecture on infective endocarditis, and those on hysteria and allied nervous affections.

As pupil, resident, and colleague, the writer has had ample occasion to realize the wide and sound knowledge Professor Glynn had, founded on careful bedside work coupled with thorough study of morbid anatomy, the value of the correlation of clinical signs and pathological features never being overlooked. He was a brilliant teacher, but to his students something more—a genial comrade, always appreciative of a good story and ready to cap it. In his earlier years Glynn was a great swimmer, and later, when longer holidays became possible, he practised his artistic gifts (at one time he worked with the late Robert Fowler, R.I.) and reached almost a professional standard. Many of his paintings were exhibited at the Royal Liver Society, and some at the Liverpool Autumn Exhibitions. The University possesses a valuable series of drawings of morbid conditions, notably those of heart lesions. He had, too, a good knowledge of music, and was a vocalist of considerable ability.

Professor Glynn, a widower, leaves three daughters and four sons, and to them we offer our sympathy in their loss, and it goes especially to the two daughters who have so helped to make the last years of their father's life such happy ones.

J. H. A.

Dr. CHARLES MACALISTER writes:

A memoir of the late Professor Thomas R. Glynn is, I understand, being written by one who was associated with him academically for many years, and the history of his career, and of his association with the Liverpool School of Medicine throughout the various phases which led to its becoming a very important faculty in the University of Liverpool, need not be reiterated. It is of the man himself and of the influences of his work and of his personality that I venture to add a few words of appreciation.

It was not as a student of the school that I had the advantages of his teaching. As a young practitioner one soon realized that he was a master of clinical medicine, the dynamic power of whose teaching attracted those fortunate enough to be able to attend his clinic. Every man's life involves a history, and, so far as our profession is concerned, it was the fact that Dr. Glynn was a great clinical observer and teacher which rendered his life so essentially valuable. He belonged to the days when specialism had not as yet split up the work of the physician. He taught general medicine, of which his knowledge was wide, on broad lines eminently educative, not only in the way of impressing clinical facts, but, importantly, in that of cultivating the principles of observing the meanings and associations of these facts. The value of his influence as a teacher is reflected by the circumstance that very many members of the hospital staffs were his pupils, who carry on the traditions of his work. To his immediate students, who were attracted in large numbers to his wards, he was a kind of god, an oracle whose word was beyond dispute. I recollect many years ago discussing a case with a young resident who had been one of his pupils. He held very definite opinions about the case in question, and, on inviting his reasons, his answer was, "Because Dr. Glynn thinks differently from most people about these cases," or words to the same effect, which indicated that he meant to hold by the teaching of his master whatever others might think of the matter. Dr. Glynn's quickness of perception was illustrated by his noting an ill-looking boy in the out-patient room becoming distressed by a draught from an opening door. He at once suspected that the lad might be suffering from rabies, which proved to be the case. When calling on Dr. Glynn last year I reminded him of

the incident, which must have happened more than forty years ago, and he was much interested to hear that I remembered it. His teaching was largely based on his knowledge of pathology, and at the Medical Institution and in his class-rooms his expositions were frequently illustrated by excellent water-colour paintings of specimens of fresh preparations, and also of clinical conditions.

Dr. Glynn's life was a busy one. A large consulting practice, added to his professorial and hospital work, afforded him little time for leisure. In the 'nineties it used to be said that it was hardly proper for any well-known citizen to die without being seen by him or by another eminent contemporary physician. His temperament, however, was one of great activity, and it would have been impossible for him to leave any time unoccupied. He was an artist of considerable merit, and had a fine appreciation of colour. As a landscape artist he produced many paintings which, in some respects, resembled those of Robert Fowler, who was frequently his guest during the summer vacations. I expect that Fowler interested him beyond the artistic side of his character in that he suffered from agoraphobia, and invariably had a companion with him when he was working. Another aspect of Dr. Glynn's life was his love of music. He was an organist, and he delighted in singing. He retained his singing voice even when he was over 80 years of age. He had a great sense of humour, which permeated both the professional and social sides of his life. He, Sir Mitchell Banks, and Edgar Browne were a never-failing source of entertainment at dinners and social functions. At the Chester Medical Society's annual dinners, for example, the spontaneous wit and repartee emanating from all three of them were as much an annual event as the dinners themselves.

On the death of an old friend memories of the past crowd in to the mind ; but one must forbear reference to them, and while rejoicing that a long life given to useful work and to the establishment of indelible traditions has been lived, yet we mourn in that we shall neither see nor hear again one who has been a devoted friend to, and a distinguished member of, our profession.

[The portrait reproduced is from the painting by R. E. Morrison.]

Universities and Colleges

UNIVERSITY OF LONDON

A special meeting of the University Court, on May 18th, had before it a letter from the clerk to the Goldsmiths' Company, stating that the Court of the Company had had under consideration the prospective needs of the University in connexion with the establishment of its own headquarters in Bloomsbury, and has decided to offer, subject to the consent of the Charity Commissioners, and to certain other conditions, a sum not exceeding £50,000 towards the cost of erecting and equipping the library building of the new headquarters. The Court, in accepting this munificent offer, has conveyed to the Goldsmiths' Company an expression of its cordial thanks and high appreciation of this further evidence of the interest taken by the Company in the life and growth of the University.

UNIVERSITY ENTRANCE SCHOLARSHIPS

Combined Hospital Examination

The Medical Schools of Guy's and St. Thomas's Hospitals, and the Medical College of St. Bartholomew's Hospital, have recently had under consideration the methods of award of university entrance scholarships, and are unanimously of opinion that, in the interests of medicine, scientific merit and attainments should be the determining factors. They have therefore agreed that their university entrance scholarships shall be awarded as a result of open competitive examination, and they have arranged to hold a common examination for the purpose. Each school offers annually a scholarship of £100 and an exhibition of £60, and the scholarships and exhibitions will be awarded by the deans of the three schools sitting in conference, after receiving reports from the examiners. The scheme will come into operation in July, 1932, when the examination will be held at St. Thomas's. Thereafter the examination will be held at each of the schools in rotation. Candidates will, of course, be entitled to express their preference for any particular school, and the stated preference will be taken into consideration when the scholarships are awarded. They will be open to students who have completed their examinations in anatomy and physiology in a British school or university outside the London metropolitan area.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on May 14th, when the President, Lord Moynihan, was in the chair.

Mr. Ernest F. Neve and Mr. G. H. Edington were introduced and admitted Fellows of the College.

Diplomas

Diplomas of Membership were granted to 161 candidates. (The names were published in reports of meetings of the Royal College of Physicians of London printed in our issues of May 9th, p. 820, and May 16th, p. 873.)

The diploma of Fellowship was granted to Alfred Richard Denis Pattison.

The Diploma in Gynaecology and Obstetrics was granted, jointly with the Royal College of Physicians, to Wallace Freeborn.

Honorary Gold Medal

The Honorary Gold Medal of the College was awarded to Mr. G. Buckston Browne, in recognition of his valuable contributions to the surgery of the genito-urinary system, and of his great liberality in the endowment of an Institute for Surgical Research.

Fellowship Examinations

The Huddersfield Royal Infirmary was recognized for the twelve months' surgical practice required of non-Members before admission to the Final Fellowship Examination.

The secretary reported that twenty-four candidates had applied for admission to the Primary Examination for the Fellowship to be held in Australia.

Vacancy on Court of Examiners

The President reported that the vacancy on the Court of Examiners occasioned by the retirement of Mr. L. Bathe Rawling would be filled up at the ordinary meeting of the Council on June 11th.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Lectures

At a meeting of the Royal College of Physicians held on May 14th, with the President, Lord Dawson of Penn, in the chair, the following lectureships were announced:

Lumleian (1932), Dr. C. E. Lakin.
Goulstonian (1932), Dr. L. J. Witts.
FitzPatrick (1932), Dr. James Collier.
Croonian (1933), Dr. W. E. Dixon.

Diploma

A Diploma in Gynaecology and Obstetrics was granted, jointly with the Royal College of Surgeons, to Wallace Freeborn, M.B., Ch.M.Sydney.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

A meeting of the Royal College of Surgeons of Edinburgh was held on May 13th, when Dr. James Haig Ferguson, President, was in the chair. The following twenty-three successful candidates out of eighty-three entered, who passed the requisite examinations, were admitted Fellows:

W. A. D'A. Adamson, S. S. Ahluwalia, G. L. Alexander, A. L. Dawkins, H. E. Emmett, E. L. Farquharson, G. J. Hanly, R. W. Hendry, R. W. Johnson, I. Kallmeyer, C. H. Leedman, J. W. Macdonald, L. G. McQueen, B. T. Mayes, S. J. G. Nairn, Belinda E. Nesbitt, P. Pattabhiramaiya, A. A. Pullar, I. M. Robertson, K. G. W. Saunders, W. G. E. Shand, G. D. Shaw, W. C. Wickremesinghe.

The Bathgate Memorial Prize, consisting of bronze medal and set of books, was, after a competitive examination in materia medica, awarded to N. W. Nisbet (Edinburgh).

Medical News

The Royal College of Physicians of London will be closed to-day (Saturday, May 23rd) and on Monday, May 25th.

The house and library of the Royal Society of Medicine will be closed to-day (Saturday, May 23rd) and on Monday, May 25th.

The annual summer dinner of the Glasgow University Club, London, is to be at the Café Royal, 68, Regent Street, W., on Friday, June 12th, at 7.30 p.m., with Professor Gilbert Murray, LL.D. in the chair. Any Glasgow University men who, though not members of the club, would like to be present are invited to communicate with the honorary secretaries, 62, Harley House, N.W.1.

A garden party in aid of the educational work of the Royal Medical Benevolent Fund Guild will be held at the Royal Botanic Gardens, Regent's Park, N.W., on Tuesday, June 2nd, from 2.30 to 8.30. H.R.H. the Duchess of York (patroness of the Guild) has consented to be present. Particulars and tickets of admission may be had from the honorary treasurer, Mrs. E. D. D. Davis, 46, Harley Street, W.1. (Telephone, Langham 1178.)

A meeting of the Medico-Legal Society will be held at 11, Chandos Street, W.1, on Thursday, May 28th, at 8.30 p.m. Dr. Nathan Raw will read a paper on dangerous drugs ; a discussion will follow.

The fourth Hugh Owen Thomas Memorial Lecture will be given in the Liverpool Medical Institution on Thursday, May 28th, at 4.30 p.m., by Mr. D. McCrae Aitken, F.R.C.S. The subject will be " Principles of rest and exercise in the treatment of joints."

The annual oration to the St. John's Hospital Dermatological Society will be given on Wednesday, May 27th, at 5.30 p.m. by Dr. S. Lomholt of Copenhagen, on the effects of concentrated ultra-violet light upon the skin, and its uses in dermatological therapy.

Particulars of the lectures and demonstrations arranged for next week by the Fellowship of Medicine will be found at page 208 of the *Supplement*. The special evening lectures to candidates for the M.R.C.P. are being continued. Copies of syllabuses for all courses and tickets of admission can be obtained from the Fellowship, 1, Wimpole Street, W.1.

At the meeting of the Central Midwives Board for England and Wales on May 7th the correspondence included letters from the Ministry of Health enclosing, for the information of the Board, copies of the Colchester, Lowestoft, and Walthamstow (Supervision of Midwives) Orders, 1931, which Orders create the borough councils of those places respectively local supervising authorities. It was agreed, on the motion of Dr. J. J. Buchan, " That the chairman of the Board, for the time being, be, by virtue of his office, a member of all committees of the Board, and of all subcommittees which may, from time to time, be appointed by such committees or any one of them."

The New York correspondent of the *Times* records the exhibition, on May 16th, at the General Electric Laboratories at Schenectady, of an *x*-ray tube having a power far beyond that of any other yet devised. Within the tube electrons were discharged at a speed of 184,000 miles a second, under the pressure of an electrical current of 900,000 volts. The rays, after penetrating a layer of copper three millimetres thick, and then 4 inches of iron, were still powerful enough to take an *x*-ray picture. The tube has been made by Dr. W. D. Coolidge, and it will be used in the Memorial Hospital, New York, for the treatment of cancer.

The committee of award has made appointments to twenty-seven Commonwealth Fund Fellowships tenable by British graduates in American universities for the two years beginning September, 1931. These fellowships are offered by the Commonwealth Fund of New York, of which Mr. Edward S. Harkness is president. The list includes the name of J. H. Biggart, M.B., B.Ch., B.A.O., Queen's University, Belfast, who is appointed to Johns Hopkins University, Baltimore, with a fellowship in medicine.

The fifty-fifth Congress of the German Society for Surgery was held at the Langenbeck-Virchow House, Berlin, on April 8th, under the presidency of Professor Schmieden of Frankfort-on-Main, when the chief subject discussed was the surgery of the peripheral nerves, introduced by Professor Kuttner of Breslau.

The third International Congress of Radiology will be held in Paris from July 26th to 31st, when the following subjects will be discussed: radiological examination of the mucosa of the alimentary canal; radiological examination of the urinary system by excretion of opaque substances; pre- and post-operative treatment of mammary cancer (recurrences and metastases excepted); radiotherapy of inflammatory diseases ; and diathermy in inflammatory diseases. The subscription is 300 francs for members of the congress, and 50 francs for persons of the members' families. Members of the congress will be allowed a reduction of 50 per cent. on their fares when travelling on French railways to and from the congress. Summaries of communications, not exceeding 400 typewritten words in English, French, or German, should be sent to the office of the congress, 122, Rue la Boëtie, Paris, VIIIe.

Dr. C. P. Oliver, C.B., C.M.G. of Maidstone has been appointed a deputy lieutenant for the county of Kent.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM* 9861, 9862, 9863, and 9864 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Inflammation at Site of Old Vaccination Scars

Dr. WILLIAM J. LEDGERWOOD (Holsworthy) writes: Could any of your readers give me an explanation of the following case, and suggest what treatment might be employed? A girl, aged 16, came to me last September complaining of great pain and stiffness in the left upper arm. The arm in the region of the vaccination scars was red, hot, swollen, and very tender. Three of the vaccination scars (the vaccination having been performed in infancy) were of a dark purple colour. She told me that the trouble began in the scars, which became purple and painful, and then the surrounding skin became inflamed. Later, small vesicles formed on the inflamed skin, and eventually, after about six weeks, during which many applications were tried, the condition cleared up, the vaccination scars looking quite normal. She has just returned to me, complaining of pain in the arm and with purple discoloration of the same three vaccination scars.

Income Tax

Allowable Expenses

"G. C. M." asks for a statement of the expenses which a general practitioner can claim, and of the proportion allowable in each case, and also as to the basis of liability in a new practice.

*** It is perhaps simplest to consider expenses as falling under one of three heads—entirely professional, almost entirely professional, and general. The first is, of course, simple, and includes drugs, medical stores, upkeep of instruments, medical subscriptions, and so on. It should, however, be remembered that it is the ordinary annual expenditure which is allowable; the cost of setting up a dispensary or acquiring or adding to a set of instruments is capital outlay, and not deductible. Where almost the whole cost is incurred for professional purposes, the usual method of dealing with such expenses is to charge the whole amount *less* a sum which represents the personal advantage—this covers such expenses as car (running costs and depreciation), telephone, and chauffeur's wages and board. No general guide can be given as to the amount to be treated as "personal"—circumstances differ so widely. With regard to the general house expenses—rent and rates, gas, coal, etc.—probably the most common ratio in provincial practices is one-half, but here again a good deal depends on circumstances—for example, if a specially high rent is being paid for a specially desirable site for professional reasons, one-half may not be adequate, and, on the other hand, if it does not include a garage, it may be excessive. As regards domestic servants, it is apparently fairly common to allow the cost of one where two or more are kept, the cost, of course, to include food, laundry, etc. On the "general" expenses question it is sometimes helpful to look at the reverse position—that is, to inspect the balance of such expenses after the professional proportion has been deducted, and see whether that is reasonable, having regard to what the practitioner and his family get first and to local conditions generally. With regard to the basis, the position is as follows: for the first year, the earnings of that year; for the second year, the earnings of the first year, unless the second year's earnings are less, in which case the taxpayer can claim a revision of the assessment to the profits of the second year; for the third and subsequent year, the earnings of the previous year. The cash basis will not be accepted for the calculation of the earnings of the first two years of a new practice.

Private use of Car

"R. B." has for some years treated one-tenth of the cost of running his car as representing private use. He has expended £150 in replacing his car, and the inspector claims that one-tenth of that sum should similarly be ignored in computing his professional expenses.

*** There seems to be no valid legal difference between running costs and replacement expenses in this connexion. If in fact the car has been used one-tenth for private and nine-tenths for professional purposes, then one-tenth of the £150 represents costs incurred through private use, and is not deductible for income tax purposes.

LETTERS, NOTES, ETC.

Ulcerative Colitis

Dr. T. GERALD GARRY (Montecatini, Italy) writes: Dr. Hurst, in his very interesting paper in the *Journal* of April 25th, suggests that bacillary dysentery and ulcerative colitis are identical; in other words, that the colitis is a sequela of the dysenteric condition. I venture to say that few with experience of these affections in tropical or semi-tropical countries will agree with this view. In Egypt, where bacillary dysentery is prevalent, ulcerative colitis is comparatively rare, and I can recall but one instance among hundreds where the condition became chronic and ended in ulcerative colitis. On the other hand, among Americans colitis is extremely common—indeed, at one time it threatened to become a fashionable malady—until attention was focused on the unfortunate gall-bladder. Among Americans colitis is certainly not due to the *B. dysenteriae*, but rather to the inordinate use of "canned" food to the exclusion of fresh food—fruit and vegetables especially. Bacillary dysentery is very amenable to energetic treatment; Glauber's salts, etc., will be found more effective than serums or vaccines, while in chronic colitis, which is prevalent at spas, it is found that a cure is frequently effected without the use of crude mechanical devices for diagnosis or treatment. The bile is the natural intestinal disinfectant, hence the efficacy of certain natural mineral waters with a specific action on the liver.

Pregnancy with Intact Hymen

Dr. G. M. HODGES (Deddington, Oxon.) writes: Dr. Sefton's letter in the *Journal* of May 2nd (p. 780) interested me, as I saw a similar case some years ago. An unmarried woman, aged 23, consulted me in March on account of four months' amenorrhoea and was found to be pregnant. She denied coitus, and was at her own request examined. The hymen was found to be quite intact, with a central opening that admitted nothing larger than a lead pencil. The hymen was not unduly elastic or sensitive. On questioning, it appeared that her "young man" had emitted semen on or between the vulvae on several occasions without any attempt at penetration. Coitus after marriage was quite painless, and when seen before delivery in the August the hymen presented the usual latero-posterior tear.

Dr. MARIE C. STOPES writes: In his note under the above title (May 2nd, p. 780) Dr. J. Sefton draws deductions from his statement "the sperm is said to die within a few hours of deposition in the vagina (unless it enters the cervix)." Such deductions are not necessarily correct, for sperms have been found alive in the vagina as long as seventeen days after their deposition; much will depend on the degree of normal acidity in the vaginal secretions of the individual woman, a point of great personal variability. Facts and discussions on these very interesting points are to be found in my book *Contraception, Its Theory, History, and Practice*, Chapter VI.

Clinical Thermometers

Messrs. G. H. ZEAL, LTD. (London), write: Our attention has been called to Dr. Robertson's letter (*Journal*, May 9th, p. 830) and the statements made therein, and we are writing to point out that the method of testing the fourteen clinical thermometers adopted by Dr. Robertson could not possibly give satisfactory results. It is a well-known fact that water in a vessel varies considerably in temperature in various parts of the vessel unless the following conditions exist: (1) a suitably constructed vessel; (2) effective heating—preferably electrical; (3) an efficient stirring apparatus. Without these three factors the temperature of the water varies appreciably in different parts of the vessel. It is also necessary to keep the mercury bulbs of the thermometers well apart in order to allow an effective flow of water between each instrument, and unless special apparatus is available, such as is used by the National Physical Laboratory and by the leading manufacturers, no degree of accuracy or uniformity of reading can be guaranteed.

Visit of Scientists to Russia

We are asked to say that arrangements have been made for a second party of scientists to visit Soviet Russia this summer. It will leave London Bridge for Leningrad on August 8th, returning to London in time for the British Association Meeting. The return fare is £18 inclusive, and the latest date for receiving applications is June 15th. Applications and inquiries should be addressed to the secretary, Society for Cultural Relations, 1, Montague Street, London, W.C.1.

Medical Golf

The annual golf competition for members of the West Suffolk Division of the British Medical Association was held at Worlington on May 14th. The following took part: Drs. F. R. Barwell, B. E. A. Batt, J. D. Batt, W. F. Bennett, J. W. E. Cory, E. C. T. Clouston, O. G. Clouston, G. Garratt, E. C. Hardwicke, D. J. P. O'Meara, C. Tylor, A. L. Ritchie, and Colonel A. D. Waring. Dr. J. D. Batt and Dr. A. L. Ritchie tied for first, one down to bogey. They will play another match.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, 46, 47, 48, 49, and 52 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 207.

The Hume Lectures

ON

HAEMOLYTIC ICTERUS*

BY

LORD DAWSON OF PENN, P.C., M.D., D.C.L.

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; PHYSICIAN IN ORDINARY TO H.M. THE KING; EXTRA PHYSICIAN TO THE LONDON HOSPITAL

LECTURE I

The disease haemolytic jaundice has an interest beyond itself, in that its features bring us in contact with the problems of the origin and destiny of blood and bile, and so with the functions of marrow and liver and spleen—difficult though fruitful territories for exploration. For the purpose of these lectures it is well at the outset to recall briefly our present knowledge of jaundice. It is now established that, unlike bile salts, bile pigment is in the higher mammals formed in greater part outside the liver. The later stages of this knowledge have been gained as follows.

ORIGIN OF BILE PIGMENT

In 1913 Whipple and Hooper[1] found that in dogs in which the liver had been isolated from the general circulation, bile pigment accumulated in the blood, and jaundice followed. From 1921 onwards Mann and his co-adjutors,[2 3 4 7] by brilliant technique, were able to show in a succession of researches that after complete removal of the liver in dogs bilirubin appeared in the blood plasma. If from one dog the liver was removed, and in another dog the common bile duct was ligated and the gall-bladder removed, within three hours in each case bilirubin appeared in the plasma. Thus the origin of bilirubin is extrahepatic.

Next it was found that even after removal of all the abdominal organs, bilirubin made obvious appearance in the plasma. Further, by the delicate spectrophotometer[5] the bilirubin contents of the arterial and venous blood travelling to and from a limb, the inside of a long bone, and the kidneys and the spleen, could be compared. In the case of the limb and the kidney there was no difference, whereas in the case of the marrow and spleen the venous blood contained more bilirubin than the arterial blood. The inference was therefore clear that the marrow and spleen are sites for the formation of bilirubin. Of these two sites the marrow, in the dog, was considered the more important for two reasons; first, the excess of bilirubin was greater in its veins compared with that of the splenic vein, and secondly, bilirubin still appeared in the plasma after complete excision of the abdominal organs. At a later date[6] the blood leaving the liver was shown to have a bilirubin content in excess of that of the arterial blood entering the liver. The above results have been confirmed by Rich[8 9] and other observers.[10] Similarly, investigation in man demonstrated the formation of bilirubin outside the liver. Thus it was shown by van den Bergh and Snapper[11] in 1915 that the blood from the splenic vein had a higher bilirubin content than the blood from the splenic artery. Rich and Reinhoff[12] came to similar conclusions.

Is it not notable that, as far back as 1847, Virchow[13]—a master-mind alike in science and statesmanship—after observing that haematoidin was found in old blood clots, concluded that bile pigment could be formed outside the liver, and it is now known that haematoidin and bilirubin are the same substance?[14] Lepehne,[15] Rosenthal,[16] and other Continental workers, however, are not so far convinced that the polygonal cell of the liver plays no part in the formation of bilirubin.

THE RETICULO-ENDOTHELIAL SYSTEM

To Aschoff[17] we owe the interesting conception of specialized endothelial cells, mesoblastic in origin, in some places woven together into more or less defined formations and in others existing as isolated units like the British Empire, a fabric scattered and loose in formation yet with unity of purpose. These cells lie along the venous sinusoids and capillaries of the bone marrow, spleen and liver, and the lymph sinusoids of lymphatic glands. They also appear singly throughout the connective tissue of the body. In response to the needs of the organism this system of cells is capable of a considerable hyperplasia and even of extension—for example, pleural cells will take on the function of these specialized cells (macrophages). The property of imbibing intra-vitam stains possessed by these cells has been beautifully illustrated by the work of Cappell.[18] By their phagocytic power they probably play a part in the defence against infections, and it is now established they are sites

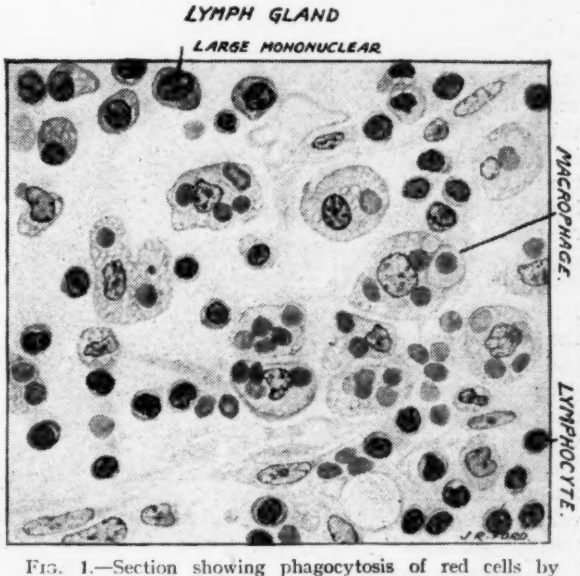


FIG. 1.—Section showing phagocytosis of red cells by macrophages in loose reticular structure of lymphatic gland. (After Scarff.)

where haemoglobin is disintegrated and pigment is formed (Fig. 1). McNee[19] made the suggestion (1913) that in these endothelial cells bilirubin had its origin.

Isolated units of wandering endothelial cells in the periphery of old blood clots have been shown by Rich and others[12] to imbibe the haemoglobin and to convert it into bilirubin within their protoplasm; further, Rich[20] has demonstrated the formation of bilirubin from haemoglobin, even in tissue culture cells. Large numbers of such endothelial cells exist as textures within the spleen and marrow. In the liver this reticulo-endothelial system is represented by the Kupffer cells, which are extensions of the endothelial lining of the vascular capillaries. These cells take up the haemoglobin from the blood stream and split it into bilirubin and haemosiderin.

In birds, where the spleen is very small and the liver large, the Kupffer cells are prominent, and play an important part in the conversion of haemoglobin into bilirubin; but in the higher mammals the Kupffer cells play but a small part in this conversion, though after splenectomy they increase in formation and function.

It is thus clear that bilirubin formed in the reticulo-endothelial system is carried to the liver by the portal vein. A diagrammatic representation of the liver is

* Delivered before the Northern Counties and Newcastle-upon-Tyne Medical Society on February 19th and 26th.

shown in Fig. 2. In each lobule it is excreted from the portal venous sinusoid by the polygonal cells into the bile capillary. Put in other words, the liver cells excrete the bile pigment and secrete the bile acids into the bile capillary. In the polygonal cells the threshold of excretion is normally a low one, so that the bilirubin content of the blood is small—namely, 0.2 unit to 0.4 unit (van den Bergh). If, however, the bilirubin content of the incoming blood is too high, or if the liver cells are damaged (for example, by some diseased process), or if there is a combination of these two conditions, there is an inadequate excretion of bilirubin, which banks up in the portal blood and the unexcreted portion passes thereby via the hepatic vein into the general circulation. In the strict sense the unexcreted portion does not enter the liver, but is retained in the blood —" retention jaundice." If the plasma bilirubin is duly excreted into the biliary capillaries, but there is some obstruction to the flow of the bile into the intestine, then there is a back pressure, and the whole bile migrates (regurgitation) from the overfilled canaliculi into the tissue spaces, and so into the periportal lymphatics and into the venous sinusoids, and so into the central intralobular vein — " regurgitation jaundice." The classification into retention and regurgitation jaundice suggested by Rich[21] would thus appear to be the most comprehensive.

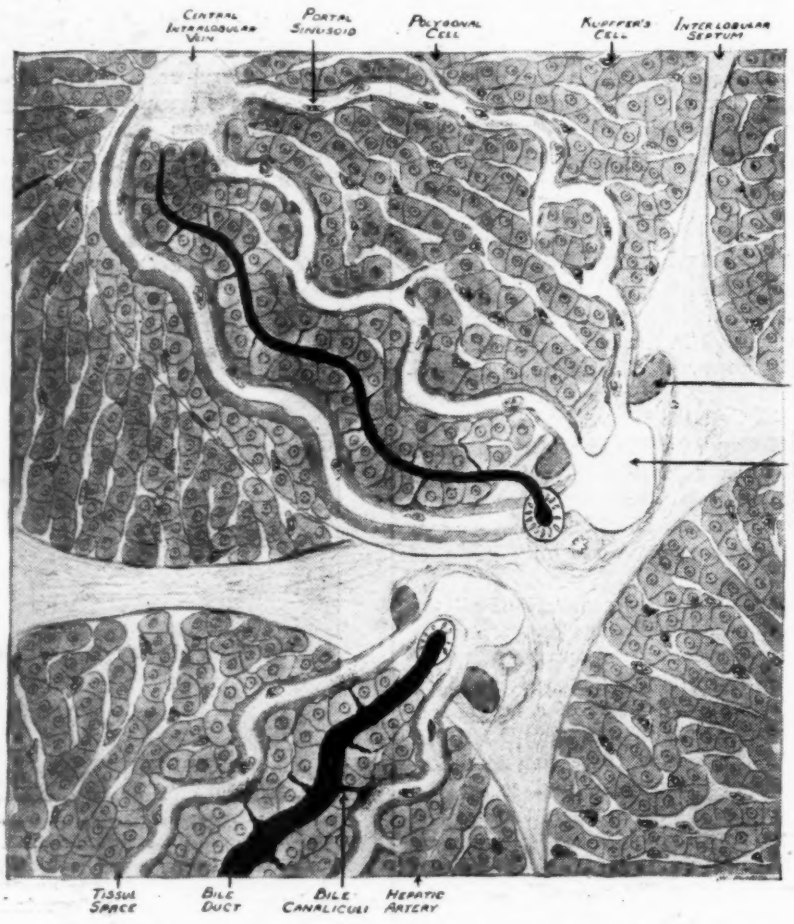


FIG. 2.—Diagrammatic representation of liver lobules, showing relation of portal sinusoids to polygonal cells. Lower portion of diagram shows the distended bile duct as found in obstructive jaundice, with rupture of bile canaliculi into lymphatic tissue space and sinusoid.

HYPERBILIRUBINAEMIA

There are thus two forms of hyperbilirubinaemia: one in which bilirubin of the plasma has first passed through the liver cells, and has perhaps been modified thereby, and the other in which the bilirubin has passed direct into the circulation without contact with the liver cells. In practice the two forms may coexist. Jaundice is an outward and visible sign of excess of bilirubin in the blood. If that excess is marked, jaundice there must be. There may, however, be a moderate degree of this hyperbilirubinaemia, and one that may be long-continuing without jaundice being apparent, given a low threshold and good function of liver cells and a free biliary tract.

The detection and measurement of bilirubinaemia have become an accurate procedure, thanks to the van den Bergh tests and the spectrophotometer. The latter is the more delicate, the former the more easily applied, method.

The van den Bergh test not only gives a measure of the amount of bilirubin present, but enables discrimination to be made between bilirubin which has, and bilirubin which has not, been excreted by the liver cells into the biliary ducts. The former gives a direct or immediate reaction, and the latter an indirect or delayed reaction. The indirect reaction represents bile pigment retained in the circulation, and the direct reaction bile which has filtered back into the circulation either through back pressure in the biliary tree or on account of serious damage to the liver cells. Bile derived either from the common duct or from the gall-bladder will give the direct reaction. Sometimes a so-called diphasic reaction occurs which is intermediate between the direct and indirect reactions. This diphasic reaction indicates that bilirubin is present in excess, but does not define the mode of its entry into the blood. In health the bilirubin content of the blood varies between 0.2 and 0.5 unit. (*N.B.*, 2 units = 1 mg. bilirubin per 100 c.cm.)[22] Allowing for exceptions, the van den Bergh reaction is a valuable guide to the origin and amount of a bilirubinaemia. The difference between the indirect and the direct reactions may be explained by assuming that the bilirubin undergoes some change in passing through the liver cells, but a more probable explanation is that in the retention type of jaundice the bilirubin is held by the plasma, whereas in the regurgitation jaundice the excess of bile salts prevents this linkage, and the bilirubin exists in a free state.[23 24 25] A colour comparison of the serum with a standard potassium dichromate solution has been used to assess the degree of bilirubinaemia.[26 27 28] This gives quantitative figures (icterus index), but no information on the type of jaundice, and does not discriminate between small amounts of bile pigment in the serum and other colouring substances, such as are found in carotinaemia.

I will now pass to the consideration of haemolytic icterus (acholuric jaundice), this study of which is based on forty cases.*

RETENTION JAUNDICE

The jaundice, if haemolytic, is never deep; it may be obvious as a lemon colouring of skin and conjunctivae, or may be confined to tinting of the conjunctivae only; again, in some cases it is absent. It is a variable feature; it will ebb and flow or come and go, though the disease persists. Chilling of the body will provoke its increase. Further, the time of its first appearance varies. Though commonly manifest in infancy, its first appearance may be delayed for several years; thus in this series some eleven

* Portions of this study have been communicated to meetings of the Association of Physicians, but have not been reported.

cases showed jaundice for the first time at various ages—for example, 6, 12, 18, 23, 44—though splenomegaly, anaemia, and hyperbilirubinaemia, and probably increased fragility, were previously present.

Of even greater interest is the fact that in some cases jaundice is absent. That was so in four cases of this series. Thus in the family, "Tope," to be described below, two members have had no jaundice, although one of these died of acute anaemia at the age of 3½; whereas two other members of the same family have had a yellow colour since birth. In a family reported upon by Gotsky and Isaac,[29] three children had increased fragility, splenomegaly, and anaemia, but no jaundice, whereas with their father and grandmother jaundice was an outstanding feature. Nor do the jaundice and the anaemia show correlation in intensity, but appear to be variants of the same haemolytic process. In such of these cases in which the van den Bergh test has been recorded, the indirect reaction, though always positive; does not appear to be proportional to the degrees of anaemia or fragility.

The amount of bilirubin in the blood, registered by the van den Bergh test, will depend not only on the grade of haemolysis, but as much, if not more, on the excreting capacity of the liver cells. The threshold of these cells is low, and even if the haemolysis is considerable, and the delivery of the bilirubin by the portal veins high, the rate of excretion by the liver cells keeps only a short distance behind. In fact, the distance behind may be so short in some cases that no jaundice is apparent.

Thus in one case there was a high fragility, 0.7 to 0.4, a red cell count of 2,920,000, reticulocytes 6.5 per cent., indirect van den Bergh reaction 3.0 units, and yet only a tinge of jaundice—that is, a considerable haemolysis, a moderate increase of plasma-bilirubin, and only a slight icterus. In other words, excretion by the liver cells into the canaliculi was not far from keeping pace with the larger supply.

It follows that in haemolytic icterus there should be an increased quantity of bilirubin passing from the bile ducts into the intestines, where it would be reduced to urobilin; such increase of the faecal urobilin (stercobilin) does occur. An interesting illustration of this fact is afforded by duodenal intubation in icterus neonatorum. Hess[30] found that where jaundice was marked, the bile in the duodenum was plentiful, but in infants not jaundiced it was scanty or absent.

The urobilinuria so usual in haemolytic icterus is accounted for by this increased amount of urobilin in the intestine. The absence of bilirubin from the urine is more difficult to explain. It has been suggested that its fixation to the blood plasma prevents the kidney cells from excreting it.

Regurgitation Jaundice

The increased production of bilirubin from the blood in haemolytic icterus will surcharge the liver with this product and predispose to the throwing down of pigment. When this occurs biliary colic or dyspepsia and back-pressure jaundice are likely to appear, and the van den Bergh test will give either a direct or a biphasic reaction. In this series thirteen patients developed symptoms due to the gall-bladder or biliary ducts, and with four of them gall colic was the first event in the clinical history, the yellow tint of the haemolytic jaundice having been previously absent or so faint as to escape notice.

The Spleen

The spleen as a rule is palpable and often considerably enlarged; the enlargement is liable to vary. According to Gänsslen,[31] in as many as 30 per cent. of cases the spleen is not palpable, but it may still be enlarged in an upward or backward direction. A palpable spleen is often the means of putting the clinician on the track of the disease, and without it atypical cases would escape notice, especially if they did not manifest jaundice or anaemia. The measure of the enlargement is not necessarily related to the severity of the case; thus "B. Tope," aged 10, is now at school, plays like other children, and has no jaundice, yet has a spleen occupying the greater part of the left side of the abdomen, a fragility of 0.6 to 0.4, and an indirect van den Bergh reaction of 3.1 units. That the spleen plays a dominant part is shown by the complete disappearance of jaundice and anaemia following its removal.

The Anaemia

There is a varying degree of anaemia. Its amount depends on the result of the rival forces of blood destruction and construction. The gravity of the anaemia is not measured only by the number of red cells, but by the amount of marrow effort required to maintain that red cell count. The anaemia is of the secondary type unless it becomes severe and the patient ill, when there may be close assimilation to the blood picture of pernicious anaemia. A habitual low red cell count is in this disease, as in others, compatible with absence of symptoms. Is this some unknown process of adaptation? In the present list of cases there are records of several patients playing their parts in the world with 3½ to 3 million red cells, and a colour index well under 1.

Microcytosis is a feature, so much so that a number of small red cells of dark colour seen in a film will suggest the disease. Reticulocytes are more numerous than in any other condition; their presence is evidence of activity in red cell formation. From 5 to 15 per cent. is a reading commonly recorded, but when a big effort is being called forth the reticulocytes may reach to 30, 40, or even 60 per cent.; in no other disease are such high readings found.

Fragility

The fragility of the red cells, in contrast to pernicious anaemia, where the red cells have an increased resistance, is commonly greater than that of normal blood. The method devised by Creed[32] for measuring the fragility is especially reliable. The point at which haemolysis commences shows some variation, but the point at which it is complete shows consistency, among the records of different observers. Fragility of the blood of haemolytic icterus varies not only in different subjects, but in the same subject. Taking the average fragility of normal blood as 0.45 to 0.35, the range in haemolytic icterus may be as high as 0.8. Its extent is not an indication of the severity of the clinical condition, and though increased fragility is a usual finding, it is not a necessary feature of the disease. Thus five cases of those specially under review had normal fragility, and Gänsslen[31] reports that in 10 per cent. of cases of acholuric jaundice there is no increase of fragility. In short, increased fragility is a factor not an essential feature—an adaptable part of a larger mechanism. Of the cases treated by splenectomy, in some the fragility is diminished after the operation without reaching the normal. Thus in this series

0.75 was 0.5 when examined three years later.
0.65 was 0.5 immediately, and four years after operation.
0.8 was 0.5 three years later.
0.7 was 0.55 twelve years later.
0.75 was 0.62 soon after.

In at least as many cases the fragility was unchanged, and Creed[33] had one case in which the fragility increased after splenectomy. The fragility is thus a variable feature, and there is no certain parallelism between its measure of increase and the severity of the jaundice, or the anaemia, or the splenomegaly. All these factors make varying contributions to the genesis of the condition. An interesting association between microcytosis and increased fragility is brought out by the observation that in various mammals those with the smaller red cells have the higher fragility (Krumbhaar).[34] Vallery-Radot and L'Heritier[35]

TABLE I.—*"Mrs. Tope"*

Date	R.B.C. c.mm.	W.C. c.mm.	Hb %	Index	Small Lymphocytes %	Reticulocytes %	Van den Bergh: Direct	Van den Bergh: Indirect units	Cholesterol mg. per 100 c.cm.	Fragility	Remarks
12/8/27	3,040,000	8,200	60	1.0		8.0	0	+++		0.65–0.45	Microcytosis
1/?/28	5,836,000		85								
28/3/28	3,450,?00	11,200	70	1.0	12.0		0	3.5			
15/5/28							0	4.5			
17/5/28	3,220,000	8,400	60	0.9	14.8	28					No abnormal r.c.
21/5/28									80		
8/12/28							0	3.5			
10/12/28	3,100,000	12,240	60	0.97	8.0						Slight aniso- and poikilo-cytosis
13/12/28									118		
22/1/31	3,700,000	10,200	85	1.1	11.0	5.8	0	3.6			

compared the size and resistance of washed erythrocytes in various mammals, with the results given below.

Species	Size in Microns.	Completed Haemolysis
Man	... 7.6	0.42–0.48
Guinea-pig	... 7.5	0.44–0.46
Monkey	... 7.2	0.44–
Dog	... 6.6	0.50–0.54
Rabbit	... 6.3	0.52–0.54
Horse	... 6.2	0.54–0.58
Rat	... 6.0	0.54–0.56
Cat	... 5.6	0.60–0.66
Goat	... 5.3	0.72–0.74

CASES, WITH COMMENTARY

I will now consider some cases in detail and, through them, certain aspects and relationships of this disease. Let us first study the family, "Tope," under the care of Dr. Sydney Atkin.

The mother began to show jaundice at the age of 6; she is now 44; she has borne four children, and leads an active life. She is always somewhat jaundiced. There is no family history of jaundice and no evidence of increased fragility in several members of the family who have been investigated. The spleen extends to the iliac crest and to the middle line; liver just palpable. The data may be set forth in tabular form (Table I).

This patient runs a busy home without apparent effort and with an average of about 3¼ million red cells—a fact which prompts the reflection that mere "numbering of the people" is an imperfect criterion of functional efficiency. A study of her chart (Table I) shows her haemolysis to be considerable, and her bone marrow is having a struggle to keep pace. The red cell count may decline further without making sign until a dangerous haemolytic anaemia appears. Moreover, the capacity of her bone marrow is more likely than not to decrease with the passing of the years. Splenectomy would be the wise course.

"P. Tope," aged 12, daughter of the foregoing, a well-made child with healthy heart and lungs. She began, at the age of 2, to have attacks of vomiting lasting about two days. She has always been pale rather than yellow, and the yellowness has never been more than a tinge. When 8 years old she had an acute illness, which was characterized first by vomiting and then by progressive pallor and weakness, the spleen being noted as large and firm, and reaching to the iliac crest; the heart became dilated, and a systolic murmur was audible over the precordium. Recovery took place after a fortnight, and about three weeks later the skin and conjunctivae were definitely, though slightly, icteric, and there was marked pallor; the spleen filled the left side of the abdomen; the liver was not felt; glands were not enlarged. The initial blood and other findings are dated August 12th, 1927, in the subjoined table.

TABLE II.—*"P. Tope"*

Date	R.B.C. c.mm.	W.C. c.mm.	Hb %	Index	Small Lymphocytes %	Reticulocytes %	Van den Bergh: Direct	Van den Bergh: Indirect Units ++	Cholesterol mg. per 100 c.cm.	Fragility	Remarks
12/8/27	2,?80,000	7,000	58	1.0		6.5				0.6–0.4	W. R. neg. Test meal 0.05 per cent. free HCl
11/2/28	4,176,000	8,800	65	0.83	13	11.0					Marked microcytosis
29/2/28	*Splenectomy*						0	5.5 (splenic vein)	70		One nucleated r.c. in 300 w.c.
2/3/28	4,603,000				9	4.0	0	2.1			
3/?/28						3.0					
5/?/28	4,000,000		85		9						
7/?/28	5,11?,000		85		10.0	1.0					
10/3/28	5,430 000		85		16.0						
12/3/28	4,200,000	7,240	80		32.5	0.3					
14/3/28	4,8 0,000	9,?80	80		26.5	0					
19/?/28	6,070,000	9,280	80								
27/3/28	5,836,000	10,?'0	80		37.5	0	0	0.4	170		
28/3/28									170		
15/5/28	5,256,000	11,4?0	105	1.0	31.2	1.0	0	0.6		0.6–0.4	No abnormal r.c.
16/5/28							0	0.6			
8/?/28							0	0.6			
10/12/28	6,400,000	2?,120	?0	0.62	?2.5						
22/ /31	5,930,000	13,600	90	0.76	27.0				154		

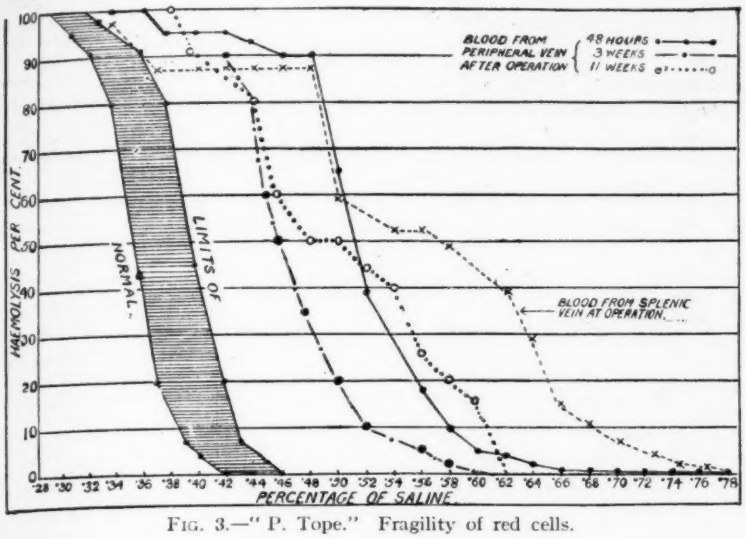


FIG. 3.—"P. Tope." Fragility of red cells.

The fragility of the blood is even better appreciated from the chart (Fig. 3). The vertical column of figures on the left stands for percentages of haemolysis; the horizontal figures indicate percentages of saline.

In February of the following year the red cell count had improved, but the reticulocytes had increased to 11 per cent., and there was marked microcytosis—a feature characteristic of this condition. Further, the van den Bergh test was as high as 5.5. There was thus a good deal of blood destruction with an active blood formation. Mere counting of red cells would have given a false impression of security. The next event was the performance of splenectomy by Mr. T. P. Dunhill, and at the same time a sample of bone marrow from the upper end of the tibia was taken. The recovery both of the patient and of the patient's blood has been notable (Fig. 4), and Table II sets it forth in graphic manner. Note the dates along the base, and the vertical column full of figures. Note the four curves, showing the red cell counts, the reticulocyte counts, which are good evidence of active formation of blood in the marrow; note the plasma-bilirubin and cholesterol. Note the 6 million red cells on March 19th, and the high red cell readings on subsequent dates; at the same time the reticulocytes and the plasma-bilirubin fell within normal limits. This polycythaemia means that splenectomy has done more than we wanted; there was no physiological necessity to remove the whole spleen.

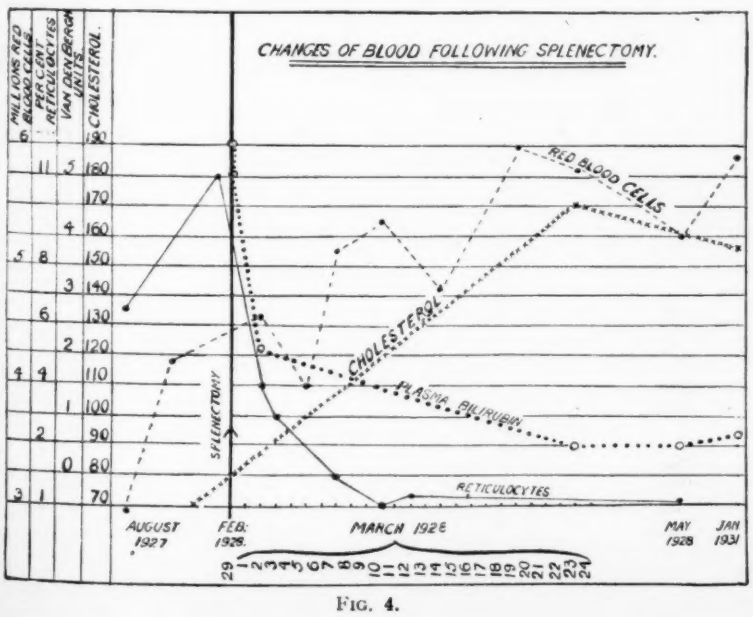


FIG. 4.

Beer[36] draws attention to the polycythaemia that may result from splenectomy, stating that as high as 13,000,000 red cells have been recorded. Weinert[37] is an advocate of more conservative surgery, such as ligation of the splenic vessels, and he recalls that the first historical record in the surgery of the spleen was the ligature of the splenic vessels by Viard in the sixteenth century. It must be remembered, however, that ligation of the splenic vessels can be more difficult than the removal of the whole spleen, and its effects more difficult to control. There is at that point not enough haemolysis, an accumulation of old red cells, and no call for new ones. (So reticulocytes are very few.) This happening resembles that found in animal experiments. The low reading of cholesterol in the blood and its sharp rise after splenectomy is significant; the same will be noted with the case of E. H. below. In contrast, however, other cases show an approximately normal blood cholesterol content. The spleen weighed 12 ounces, showed great congestion, and a little iron-free pigment. A notable feature of this case was the sudden and dangerous illness due to acute haemolysis.

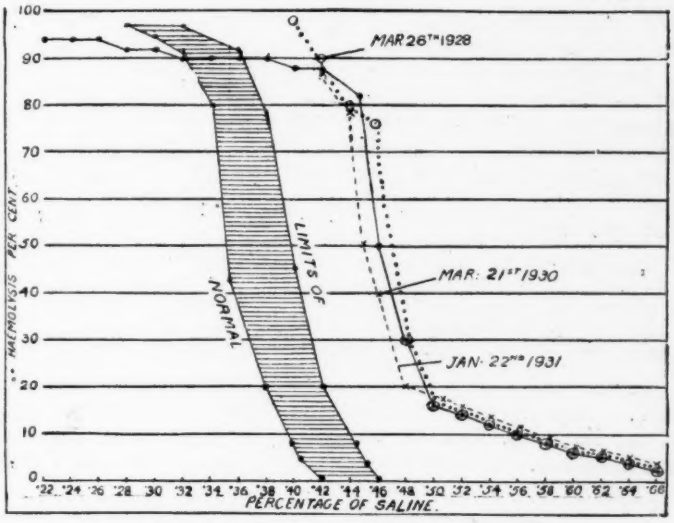


FIG. 5.—"B. Tope." Fragility of red cells.

"S. Tope."—An attack of acute illness with splenomegaly similar to that which nearly killed "P. Tope" was fatal to this younger sister, aged 3½, in the year 1927. This child's health had previously been excellent, and she had never shown any icterus. Her illness began acutely with vomiting; the spleen was palpable; pallor and weakness rapidly increased, and death occurred in six days. Blood tests are lacking here, but the close resemblance between the illnesses of the two sisters is highly suggestive. The presence of jaundice in the sister and its absence here is in keeping with known facts. The liability to severe haemolytic crises with short or no warning in this disease should be borne in mind. In this series of cases seven patients showed this feature, and of these three succumbed.

"B. Tope," aged 10, another daughter, has never been jaundiced or ill. Though pale, she has always been active and vivacious. In 1928 her spleen reached to the umbilicus. The report on the findings then and subsequently are set forth in Table III. (The graph of the fragility of red cells is shown in Fig. 5.)

Can there be any doubt that this child, however well she appears, should have her spleen removed?

TABLE III.—*"B. Tope." Never any Jaundice*

Date	R. B. C. c.mm.	W. C. c.mm.	Hb %	Index	Small Lymphocytes %	Reticulocytes %	Van den Bergh		Cholesterol mg. per 100 c.cm.	Fragility	Remarks
							Direct	Indirect units			
12/8/27	4,200,000	7,100	64	0.76		13	0			0.6–0.4	Microcytosis
4/3/28									107		W. R. negative
28/3/28	4,900,000	11,840	65	0.65	22.5		0	1.5			
10/12/28	4,850,000	11,140	65	0.67	24.0						
21/5/30	4,360,000	4,900	72	0.83	16.8	3	0	2.0	107	0.5	
22/1/31	4,200,000	9,600	90	1.0	13.0	4.4	0	3.1		0.6–0.35	

This family shows notable variety in the features of the disease; the mother definitely icteric and anaemic, yet working hard and without apparent difficulty; "P. Tope," more anaemic than jaundiced, nearly killed by an acute attack of haemolytic anaemia, and cured by splenectomy. The younger sister ("S. Tope") died from an acute attack of haemolytic anaemia, and had little or no jaundice. "B. Tope" is active and vivacious, has never yet been ill or jaundiced, yet is anaemic, and has the same high fragility of 0.6 and a raised indirect van den Bergh reaction.

The following two cases—I. S., aged 11½, and H. S., aged 10—illustrate the attacks of anaemia referred to above, though in milder form. These were characterized by restlessness and sleeplessness, and increasing pallor and weakness, and had a greater proneness to occur in cold weather. Both boys has an icteric tinge and enlarged spleens.

Van den Bergh reaction in I. S., 5 units—positive indirect; in H. S., 2.5 units—positive indirect. Blood: I. S., 4,500,000 red cells, colour index 0.84, haemoglobin 78 per cent.; H. S., 4,780,000 red cells, colour index 0.9, haemoglobin 85 per cent. Fragility in each case within the normal.

E. H., a girl aged 15, exemplified Chauffard's description, "*plus ictériques que malades.*" But for jaundice, which had been with her since babyhood, this girl had the appearance of health and vigour. Yet a study of her case shows how unstable was her present, how perilous her future. The spleen was palpable.

A study of this table (IV) suggests the following reflections. In spite of appearances the anaemia was pronounced, the haemolysis as shown by the van den Bergh reaction considerable, and the innate reserve power of this patient's bone marrow none too good, for the output of reticulocytes (a maximum of 14 per cent.) before the operation was not striking in face of the need; and a constant high colour index with that red cell count is not a good sign. Moreover, when the strain of haemolysis was lifted the recovery of the red cell count was slow. With such a patient a severe haemolysis might have come like "a thief in the night." Such a haemolysis nearly killed "P. Tope," and did kill her younger sister. Following the splenectomy, the plasma-bilirubin fell to normal in four days, and there was a change in the patient's complexion. The reticulocyte count reached normality in ten days, but, as just stated, the red cells have been slow in recovery, since, four months after the operation, they were only 4,400,000. Contrast this with "P. Tope": a week after her splenectomy her red cells were over 5 millions, and in three weeks 6 millions, either because her pre-operation haemolysis was less or because her bone marrow gave more response when the destructive force was removed. The point worthy of comment is that the low cholesterol content of the blood present in the

TABLE IV.—*E. H.*

Date	R. B. C. c.mm.	W. C. c.mm.	Hb %	Index	Small Lymphocytes %	Reticulocytes %	Van den Bergh		Cholesterol mg. per 100 c.cm.	Fragility	Remarks
							Direct	Indirect Units			
12/5/30					24.5		0	10.0		0.55	Polychromatophilia
2 /5/30	2,700,000		56	1.01		14.0		5.5	157	0.62–0.44	Free HCl 0.07 %
23/5/30	2,800,000	4,120	65	1.07	34.0	9.0					
26/5/30	3,500,000	4,480	70	1.0	35.0	11.0					Anisocytosis
30/5/30	3,650,000	5,270	75	1.0	29.0						
2/6/30	3,800,000	5,200	75	1.0	25.0	5.0					Anisocytosis
5/6/30	3,100,000	7,000	75	1.2	19.5						Anisocytosis
11/6/30	3,900,000	5,400	75	0.95	35.0	5.4					
12/6/30	*Splenectomy and Cholecystectomy, Mr. A. J. Walton.*						0	5.0			
13/6/30	3,700,000	32,400	75	1.0	8.5	5.4					
14/6/30							0	5.0			
16/6/30	3,700,000	11,920	70	0.9	27.0	1.4					
19/6/30	3,650,000	9,200	75	1.0	33.5	3.2	0	1.0			Anisocytosis
27/6/30	4,000,000	5,600	80	1.0	27.5	0.6					
27/5/30	4,800,000	8,520	80	0.5	31.0	0.2					
5/7/30							0	0.5		0.6–0.44	
7/7/30	4,850,000	8,200	85	0.85	39.5	0.2					
24/ 0/30	4,400,000	5,480	85	0.9	37.5	0.6	0	0	160		

"Tope" family, and which rose strikingly after the removal of "P. Tope's" spleen, did not exist in this case. E. H.'s gall-bladder was thickened, and contained pigment-calcium calculi, together with a cluster of white calcium carbonate crystals. No organism could be grown from the centre of a calculus—that is, the calculi were of metabolic, not of infective, origin.

THE FAMILIAL FEATURE

The following case is cited as illustrating the familial feature.

W. G., male, was first seen on August 17th, 1924, aged 34, with the following history. He was quite well up to the age of 22, when pain in the left upper abdomen led to the discovery that he had a spleen enlarged to the umbilicus; he was anaemic, and had a slight yellow tinge. A diagnosis of splenic anaemia was made, and splenectomy advised but refused. He recovered and remained well for eight years, pursuing his employment. Then he had jaundice, dark-coloured urine, and pale stools, but no pain. He recovered health for a further two years, when (1922) jaundice and dark urine returned, and this time there was pain with tenderness over the lower part of enlarged spleen (? result of blow). The table of findings shows that this patient's bone marrow was holding out; but note how a simple operation put this red cell count down (Table V).

TABLE V.—*W. G. Blood Counts*

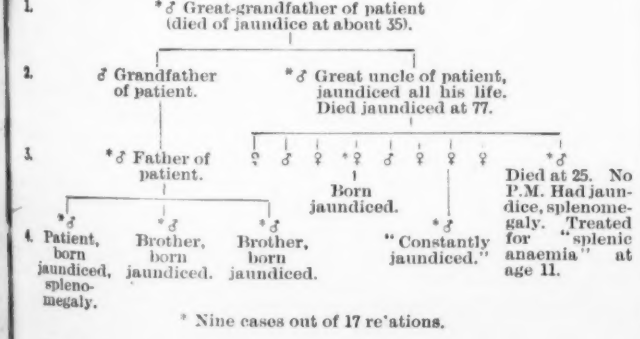
Date	R. B. C. c.mm.	Hb %	C. I.	W. C. c.mm.	Small Lympho-cytes %	Aniso-cytosis	Poly-chro-mato-philia
13/6/22	3,000,000	60	1.0	9,600	19.0	+	+
21/6/22	4,010,000	85	1.1	10,120	12.5	–	–
24/6/22	4,100,000	80	0.98	7,880	22.5	–	–
27/6/22	3,825,000	85	1.1	9,040	17.0	–	–
28/6/22	4,500,000	85	0.94	7,200	10.5	–	–
1/7/22	4,080,000	80	0.99	7,080	20.0	–	–
3/7/22	3,160,000	85	1.3	10,280	20.5	–	–
19/2/23	4,660,000	100	1.1	6,400	21.5	+	–
18/12/23	3,900,000	80	1.0	9,880	15.0	+	+
19/8/24	4,700,000	81	0.86	12,600	17.5	–	–
17/11/25	4,800,000	78	0.81	9,340	21.0	–	–
9/12/27	*Left supraclavicular abscess opened and drained*						
10/12/27	3,050,000	55		8,800	23.0		

Fragility

13/6/22: Haemolysis of patient's red cells commences at 0.5 saline.
17/12/24: Haemolysis of patient's red cells commences at 0.6 saline.
17/11/26: Haemolysis of patient's red cells commences at 0.55 saline.
Urine.—14/6/24: Much urobilinogen present. *Wassermann reaction.*—14/6/24: Negative.

On questioning W. G. it appeared that he had a yellow tinge as a baby. "My brothers and myself," he said, "were born with jaundice." Thanks to Dr. Harvey Francis, the familial character of this disease in W. G.'s family is well illustrated.

TABLE VI.—*Familial Acholuric Jaundice—9 Affected in 4 Generations*


1.
*♂ Great-grandfather of patient (died of jaundice at about 35).
2.
♂ Grandfather of patient.
*♂ Great uncle of patient, jaundiced all his life. Died jaundiced at 77.
3.
*♂ Father of patient.
Born jaundiced.
*♂ Died at 25. No P.M. Had jaundice, splenomegaly. Treated for "splenic anaemia" at age 11.
4.
*♂ Patient, born jaundiced, splenomegaly.
*♂ Brother, born jaundiced.
*♂ Brother, born jaundiced.
*♂ "Constantly jaundiced."

* Nine cases out of 17 re'ations.

HAEMOLYTIC ICTERUS IN LATER LIFE

It will be convenient to study next certain cases of haemolytic icterus in later life, as they represent end-results.

Mrs. Labourne, aged 53, was admitted to hospital with manifestations of anaemia so severe as to make it obvious that her life was in danger—pallor, faintness, dyspnoea, oedema of feet; there was a faint icteric tinge; her spleen was enlarged to a level below the umbilicus; liver just palpable; no enlarged glands. Her blood count was as follows:

Red blood cells, 2,000,000; haemoglobin, 26 per cent.; colour index, 0.65; white blood cells, 8,400; 3 normoblasts and 2 megaloblasts seen in counting 200 white cells. Poikilocytosis, anisocytosis, polychromatophilia, and punctate basophilia present. Anisocytosis very marked, and a notable increase in the larger variety of red cells. Wassermann reaction, negative; blood urea, 0.048 per cent.; fragility, haemolysis up to 0.75; van den Bergh reaction, direct and indirect positive; urine, trace of albumin, no bile.

This illness commenced three weeks before, and ended in death ten days after, admission to hospital. For eighteen years prior to this illness the patient had lived an ordinary life, except for occasional attacks of abdominal pain and vomiting, no doubt due to gall-stones. She had borne children and had done her domestic work. Further investigation disclosed that in girlhood she had been yellow, and that she and her sister were teased at school on account of this and called the "yellow sisters," though they were both well and active. This patient had lost her jaundice, while her sister retained it. In the year 1890, at the age of 17, Mrs. Labourne suffered for three years from severe anaemia—faintness, pallor, dyspnoea, oedema of feet; heart normal, liver and spleen were both much enlarged; red cell count was 1,400,000. A year or two after there occurred the first attack of abdominal pain. In 1909 the patient was admitted with shivers, fever (103° F.), and jaundice. At the same time she was very pale; her spleen extended to the iliac spine, and the red blood count was 800,000, normoblasts and megaloblasts being present. Her case was then diagnosed as pernicious anaemia, but after a while she improved and returned home. After this she was relatively well for twenty years, and then came the fatal attack of haemolytic anaemia. There will be further reference to this case when pathology is being considered.

Mrs. P.—This woman, aged 55, the sister of Mrs. Labourne, had to be traced to her home. She admitted no disabling illness. Since she was a "yellow sister" in childhood she had remained yellow more or less ever since, but never deeply so. About the age of 30 she had a nagging pain in the left upper abdomen, worse when up, and she herself felt a lump in that position. She was then liable to periods of dyspnoea, weakness, palpitation, etc. But she has lived her life, has had nine pregnancies, and has seven children alive, none of whom are yellow. At the time of her discovery in 1927 she showed slight jaundice and pallor, and had a normal heart.

Red blood cells, 2,900,000; haemoglobin, 32 per cent.; colour index, 0.55; white blood cells, 9,520; 1 normoblast in 200 white cells. Poikilocytosis and anisocytosis present. Wassermann reaction negative.

A notable blood picture, this, for a woman living an ordinary life.

The record of these sisters is complete and informing. Mrs. Labourne in her girlhood showed acholuric jaundice, and probably from the first had a low red blood count due to haemolysis; and a workable balance was only maintained by over-production on the part of the bone marrow. When she was 17 the marrow became exhausted, and the patient suffered for three years from severe anaemia, afterwards recovering equilibrium. In 1909, at the age of 36, she was thought to have pernicious anaemia. There followed eighteen years without disabling illness, and then came a short and fatal attack of haemolytic anaemia at the age of 53. Note how the clinical picture changed; at one time jaundice, and at another anaemia, was the outstanding feature. The sister, Mrs. P., has had to combat a less powerful haemolysis, and is still active; but a similar end probably awaits her.

Mrs. "Ford," aged 65 in 1926, an old lady whose father, daughter, and grandson also had haemolytic icterus, illustrates the frequent association of cholecystitis and cholangitis with this condition, and, when from age or severity of symptoms, both gall-bladder and spleen cannot be operated upon at the same time, the importance of deciding which operation should have priority. This patient had in her youth mild jaundice, varying in degree and probably of haemolytic origin, for her spleen was known to be enlarged. As time wore on, the jaundice picture altered and suggested cholecystitis. At the age of 51, in 1912, the gall-bladder was drained and calculi were removed. Thereby the pain disappeared, but jaundice persisted. The unwisdom of not removing the large spleen shortly thereafter is obvious. A few years later, when aged about 65, haemolytic anaemia in the shape of breathlessness and palpitation made itself manifest, and the blood picture showed 3,384,000 red cell count, the fragility was 0.6 for commencing haemolysis, the van den Bergh test showed a negative direct and a positive indirect reaction, and there was no bilirubin in the urine. A year later the jaundice increased, the van den Bergh direct reaction became positive, and bile pigment appeared in the urine; henceforth the case resembled more the picture of cholangitis. The red cell count was now 3,050,000, and the reticulocytes only 0.6 per cent., showing that there was but little fight left on the part of the bone marrow. Finally, it was decided to operate on the cholangitis; this was done, but, as a preliminary, after every care in typing, blood transfusion was performed. There followed a gradual deepening of the jaundice to a dark olive-green colour. Death ensued. The patient would have been better without the transfusion. This occurrence of severe jaundice following transfusion again finds illustration in the next case.

Mrs. "Bass."—Aged 44, admitted on January 11th, 1928, under Dr. Leyton, for whose permission I am indebted. There was here a doubtful history of icterus early in life; at the age of 13 the patient had been treated for chlorosis. She had had fourteen children, of whom thirteen died at or soon after birth. The last and fatal illness, at the age of 44, lasted nearly six months, and was characterized by increasing anaemia, an icteric tint, failure of appetite, and later loss of flesh. The spleen was enlarged nearly to the umbilicus; the liver was just palpable. Lungs clear; heart, soft systolic murmur at base; blood pressure 140/75; small haemorrhages in right fundus; urine cloudy with albumin; urobilin ++; *x*-rays of bones, normal.

TABLE VII.—"*Mrs. Bass*"

Date	R. B. C. c.mm.	W. C. c.mm.	Hb %	Index	Small Lymphocytes %	Reticulocytes %
11/1/28	1,600,000	8,000	33	1·03	31.0	30.0
17/1/28	1,600,000	9,000	34	1.06	20.5	43·4
23/1/28	1,600,000	8,560	32	1.0	27.5	65·2
4/2/28	1,400,000	9,360	28	1.0	29.0	
26/1/28	2,000,000	10,400	40	1.0	31·0	51.4
5/3/28	1,600,000		35			
8/3/28	1,900,000	11,400	39	1·02	9.0	48.5

11/1/28 33 normoblasts in counting 200 white cells
4/2/28 73 normo., 8 megal., 5 micro. in 200 w. cells
26/2/28 14 normo., 4 megal., in 200 white cells
8/3/28 41 normo., 16 megal., in 200 white cells
} Poikilocytosis, anisocytosis, and polychromatophilia in all instances marked.
18/1/28 *Van den Bergh reaction*: Direct negative. Indirect positive.
14/2/28 Strong biphasic reaction after first transfusion.
5/3/28 Strong biphasic 4.8 units.
5/3/28 *Fragility* reached 0.82. Wassermann reaction negative.
5/3/28 *Cholesterol*: 257 mg.
5/3/28 *Test meal*: Free HCl absent. Total acidity 0.22.

The patient received three blood transfusions during the last sixteen days of her life: (1) 350 c.cm., (2) 600 c.cm., and (3) 500 c.cm. The blood group was No. 2. Each transfusion was followed by pyrexia (up to 104° F.), vomiting, diarrhoea, and deepening jaundice. Towards the end there was increased anuria, and two days before death (March 28th, 1928) only three ounces of urine were passed. This anuria has been shown by Baker and Dodds[39] to be due to the blocking of the kidney tubules by masses of acid haematin pigment.

Here, then, is a second case which suggests caution in the employment of transfusion of blood in this disease. It will be noted also how some of the severe cases are almost identical in their pictures to pernicious anaemia (for example, Labourne and Bass).

[The list of references will appear at the end of Lecture II.]

PSEUDO-ARGYLL ROBERTSON PUPILS WITH ABSENT TENDON REFLEXES

A BENIGN DISORDER SIMULATING TABES DORSALIS

BY

W. J. ADIE, M.D.ED., F.R.C.P.

PHYSICIAN, CHARING CROSS HOSPITAL AND ROYAL LONDON OPHTHALMIC HOSPITAL; PHYSICIAN TO OUT-PATIENTS, THE NATIONAL HOSPITAL FOR NERVOUS DISEASES, QUEEN SQUARE

I wish to draw attention to a benign symptomless disorder characterized by pupils which react on accommodation but not to light, and by absent tendon reflexes.

Five of the six cases I am about to describe came under my notice in the course of a few weeks; the condition therefore cannot be very rare. Though harmless in itself it merits recognition because it is often mistaken for a manifestation of syphilis of the nervous system, with unfortunate consequences for the patients and their families.

CASE I

A woman, aged 36, was admitted to the Hospital for Tropical Diseases under the care of Dr. G. Carmichael Low for an "overhaul" on her return from abroad. Physical examination and routine laboratory tests revealed no evidence of disease apart from the neurological signs that concern us here. There was nothing in the family or personal history to explain these signs. Ten years ago she noticed that her pupils were unequal. On examination I found pupils of moderate size, the right just larger than the left, which was slightly oval; neither reacted to light, direct or consensual; both contracted fully on convergence, but the movement was remarkably slow; after the effort to converge was relaxed they remained small for several seconds, then dilated very gradually to their original size. All the tendon reflexes in the upper and lower limbs were completely abolished. There were no other signs of organic nervous disease. I knew that this myotonic pupillary reaction had nothing to do with syphilis, but had never seen or heard of it in association with absent tendon reflexes. I reported as follows: "A most unusual case; I prefer not to make a diagnosis; the condition is benign, and should not prevent her from returning to her work abroad." After her discharge, Dr. Low kindly allowed me to consult the hospital notes, and I found that Wassermann's test had been done on the blood and cerebro-spinal fluid with negative results.

CASE II

A woman, aged 23, attended hospital because her brother, an optician, had found that she had Argyll Robertson pupils. She was admitted to the National Hospital for investigation. She knew "what they thought," and was greatly distressed. With the first case in mind I promised her that she should leave the hospital with the stigma removed. Apart from the special signs, nothing of importance was discovered in the course of a thorough routine investigation. The following observations were made: the pupils were unequal, right 3½ mm., left 3 mm.; the right was irregularly oval with the long axis vertical, the left regularly oval with the long axis horizontal. The reaction to light was completely absent in both; the reaction on convergence was present in both, but was abnormal; the contraction was delayed and proceeded slowly until the pupils reached pin-point size. When the effort to converge was relaxed they dilated very slowly to their original size. The knee- and ankle-jerks

were completely absent. These observations were confirmed repeatedly by myself and my colleagues. The Wassermann reaction was negative in the blood and cerebro-spinal fluid. The report on the fluid was as follows: clear, colourless; no cells seen; total protein 0.035 per cent.; Nonne-Apelt and Pandy reactions negative; Lange's colloidal gold test, no change (Dr. J. G. Greenfield).

CASE III

A young man, now aged 32, was brought to me twelve years ago by his sister, a medical student, who discovered that he had Argyll Robertson pupils. I found that his knee-jerks were absent, and thought that he was a case of congenital tabes. He came to see me recently about another matter, and I went into his family and personal history and made a complete physical examination. Nothing apart from the neurological signs suggested syphilis, congenital or acquired. His general health was good. The pupils were moderate in size and unequal, right larger than left. The right was totally inactive to light, the left reacted very feebly. On convergence both pupils contracted very slowly to pin-head size, then dilated still more slowly when he looked into the distance. He had noticed himself that the pupils varied in size from time to time. All the tendon reflexes in the upper and lower limbs were absent. There were no other neurological signs. He has submitted to several tests of the blood and cerebro-spinal fluid, all with negative results.

CASE IV

A woman, aged 45, attended the Royal London Ophthalmic Hospital for glasses and was referred to me by Mr. Foster Moore, who had noticed the abnormal pupils. There was nothing worthy of note in the family or personal history. Her general physical condition was good. Vision improved to 6/9 right, 6/18 left; no optic atrophy (Mr. Foster Moore). The pupils were unequal; right 3 mm., left 2½ mm. The left pupil did not react to light; on convergence it contracted slowly but fully, and maintained its smaller size long after convergence had ceased; it then dilated very gradually. The right pupil contracted feebly to light, slightly better on convergence; the contraction was not slow or unduly maintained. The knee-jerks were easily obtained and equal, but the ankle-jerks were completely absent. The Wassermann reaction in the blood was negative. The cerebro-spinal fluid has not yet been examined.

CASE V

A girl, aged 17, was referred to me by Mr. Foster Moore and admitted to the National Hospital for investigation. She noticed about two years ago that her pupils were unequal, and that the left pupil varied in size from time to time. Four months ago the left pupil became permanently large; since then she has not been able to use it for close work. Otherwise she has always been in perfect health. Examination revealed no other signs except the following. The pupils were unequal; right 2½ mm., left 8 mm. They were both inactive to light; on convergence the right pupil contracted slowly to pin-point size, and when convergence ceased it again dilated very slowly. The left did not contract on convergence. The knee-jerks were brisk; for a patient of her age, and compared with the active knee-jerks, the ankle-jerks were certainly abnormally sluggish. The Wassermann reaction was negative in the blood and cerebro-spinal fluid. Report on the cerebro-spinal fluid: clear, colourless, 1 cell per c.mm.; total protein 0.03 per cent.; Nonne-Apelt and Pandy reactions negative; Lange's colloidal gold reaction 0001100000 (Dr. J. G. Greenfield).

CASE VI

In an article on the myotonic pupil in Wilbrand and Saenger's *Neurologie des Auges*, I found a reference to a case described by Gehrcke in which eye signs like those in my cases were found in a patient with "imperfect stationary tabes." The following is an extract of the case history: A woman, aged 45; right pupil inactive to light, very slow contraction and relaxation on convergence; ankle-jerks absent. There were no other signs of organic nervous disease. The family history was not given. The Wassermann reaction was negative in the blood and cerebro-spinal fluid. The Nonne-Apelt, Weichbrodt, and Pandy reactions were all negative; no increase of cells; pressure normal. Nevertheless, because the ankle-jerks were absent the diagnosis of tabes was made. This is the only case resembling my own that I have been able to find in the literature. I have not yet completed my search. (See note at end.)

COMMENTARY

It is not surprising that all of these patients with "Argyll Robertson pupils" and absent tendon reflexes were thought to be suffering from syphilis of the nervous system, congenital or acquired. The correct diagnosis can be made with certainty by closely observing the contraction of the pupil during the act of accommodation for near objects. The true Argyll Robertson pupil reacts promptly and fully, often excessively, on convergence, and dilates again as soon as the effort to converge the visual axes is relaxed. In these cases the pupils show the so-called myotonic reaction; they do not respond to light; they contract very slowly through a wide range during a sustained effort to converge; often remain small long after the effort ends, and, when they dilate again, do so slowly. They differ in other ways from the true Argyll Robertson pupil, but the above features are sufficient to distinguish them. This myotonic reaction is well known to ophthalmologists, and it has been firmly established that syphilis plays no part in its production. Mr. Foster Moore has described seven cases under the title "Non-luetic Argyll Robertson pupil," and has told me of several others he has seen. The characteristics of his cases are, he says, the complete or substantially complete inaction of the pupil to the light stimulus, the leisurely manner in which it contracts with convergence, and in which it again dilates after relaxation of convergence; the frequency with which it is unilateral; the integrity of accommodation; the absence of syphilis; the presence of knee-jerks, and the absence of signs of any nervous disease even after many years.

It seems to me more than probable that some of his cases with non-luetic Argyll Robertson pupils but normal tendon reflexes are examples of a milder form of the same benign disorder that I have described here. I think, too, that my cases are related to those described by Mr. Gayer Morgan and Dr. C. P. Symonds under the titles "A series of cases with rapid onset of unequal pupils and failure of accommodation: a forme fruste of encephalitis lethargica," and "Internal ophthalmoplegia with absent tendon reflexes." In their cases the defect was most often unilateral, the affected pupil was dilated, and reacted not at all or incompletely both to light and on convergence; further, accommodation was partially paralysed, so that visual symptoms were produced. In some of their cases the tendon reflexes were diminished or lost.

My fifth patient seems to me to provide evidence that links the three groups. In one eye her pupil was dilated and fixed, with paralysis of accommodation, as in the cases described by Mr. Morgan and Dr. Symonds; in the other eye accommodation was normal, the light reflex was absent, and the reaction on convergence was myotonic as in the non-luetic Argyll Robertson pupils of Mr. Foster Moore. My fourth case also showed a myotonic pupil on one side and a partially fixed pupil on the other. I have reason to believe that a large fixed pupil is sometimes the forerunner of a myotonic pupil. These and other more academic aspects of the subject I hope to deal with at another time. My object now is to make it known that pupils conforming to the prevailing loose definition of an Argyll Robertson pupil, and easily mistaken for the true

Argyll Robertson sign, may be found associated with loss of tendon reflexes in patients with a benign disorder that has nothing to do with syphilis whatsoever.

Note.—After this was written, Mr. Foster Moore kindly allowed me to read the typescript of his paper on the non-luetic Argyll Robertson pupil, which he read at the recent ophthalmological congress. In one of his fifteen patients with this abnormal reaction of the pupil, the knee-jerks were absent : in another they were obtained with reinforcement only.

BIBLIOGRAPHY

Wilbrand and Saenger: *Neurologie des Auges*, 1922, ix, 143.
Moore, R. Foster: *Transactions of the Ophthal. Soc. of the United Kingdom*, 1924, xliv, 38.
Morgan, G. and Symonds, C. P.: *Guy's Hospital Reports*, 1927, lxxvii, 13.

ACUTE MASSIVE COLLAPSE OF THE LUNG FOLLOWING LIPIODOL INJECTION

BY

A. J. SCOTT PINCHIN, M.D., F.R.C.P.

PHYSICIAN TO VICTORIA PARK CHEST HOSPITAL; PHYSICIAN, WEST LONDON AND HAMPSTEAD GENERAL HOSPITALS

AND

H. V. MORLOCK, *M.C.*, M.D., M.R.C.P.

PHYSICIAN TO OUT-PATIENTS, VICTORIA PARK CHEST HOSPITAL, MILLER AND HAMPSTEAD GENERAL HOSPITALS

In view of the more general use of lipiodol injection of the bronchial tree as an aid to the diagnosis of pulmonary disease and of the increasing importance which collapse of the lung is assuming in the etiology of acute pulmonary conditions, this case is of special interest.

The patient, a healthy-looking young man, aged 18, was sent to us because of a pain in the side, which he had had for two months and which his doctor suspected as a pleurisy. The pain was sufficiently severe to prevent him breathing deeply. There were no physical signs except feeble breath sounds. He was admitted to hospital for further investigation to exclude the possibility of fibrosis with bronchiectasis. A simple skiagram of the chest showed no abnormality. A lipiodol injection of the bronchial tree was done by the crico-thyroid route. To suit the convenience of the hospital this procedure was carried out on the *x*-ray table. The following points are to be noted:

1. The injection was done on the *x*-ray table, the film being in position, and the time from the injection to record of the skiagram was considerably less than five minutes, probably only three minutes.
2. At the time of the collapse the patient showed only slight respiratory distress. The physical signs present were diminished movement, slight impairment of percussion note, and a considerable diminution of the air entry over the affected side of the chest.
3. The speed with which recovery took place according to the skiagraphic records.

Jacobaeus, Selander, and Westermark,[1] in their paper on acute massive collapse of the lung, record four such cases in which the injection of lipiodol was followed by collapse of the lung. These were from a series of eight patients with normal bronchi whom the authors were injecting for purposes of investigation, and it is somewhat astonishing that they should have found so high a proportion in whom the injection was followed by massive collapse.

In our case the bronchi were normal, but in a previous investigation on the subject of dry haemorrhagic bronchiectasis we occasionally injected lipiodol into a patient with normal bronchi, yet this is the first case of massive collapse from this cause that we have seen. In a series of many hundreds of lipiodol examinations for many varying pulmonary conditions at Victoria Park Hospital no such case of massive collapse has occurred.

A point of considerable interest is the length of time between the injection and the collapse. In Jacobaeus's cases ten to fifteen minutes elapsed between the injection and the skiagrams. In our case the time between the injection and the record by skiagram was probably not more than three minutes. That is to say, the collapse was practically immediate. Coryllos, Birnbaum,[2] and also Lee, Radwin, Tucker, and Pendergrass[3] produced massive pulmonary collapse in animals by plugging a bronchus with a balloon. The collapse was not complete till six hours later. The latter authors also obstructed a bronchus with a solution of gum arabic, causing complete collapse in four hours. The time taken for the collapse to disappear in Jacobaeus's cases was from two and a half to nine hours ; in our case there was considerable improvement in half an hour, and complete recovery in twelve hours.

ETIOLOGY OF MASSIVE COLLAPSE

Morison,[4] in an instructive article reviewing massive collapse, groups the four main theories of etiology as follows:

1. Failure of the respiratory power of the lung playing an active part (Pasteur).
2. The mucus plug theory (Jackson, Lee, and others).
3. Reflex spasm of muscles of the bronchioles (Bradford, Sante, and others).
4. Inflammation of the crus and one-half of the diaphragm or of pleural membrane covering it (Charlton Briscoe).

Clinical experience goes to show that Group 1 probably has least influence in the production of the condition. A mucus plug, acting either as a complete obstruction or as a check valve (in which case the air may be exhausted much more rapidly), may indeed be a factor in the causation of post-operative collapse, but cannot cause this instantaneous collapse.

Reflex spasm, involving the walls of the bronchioles, is the only way in which the lung could be so rapidly emptied of its air. Jacobaeus put forward this view in explanation of his four cases following lipiodol injection, concluding that spasm of the bronchi and bronchioles squeezed out most of the air in the bronchial system, leaving only the alveolar air to be absorbed. In support of this view he claimed that in two cases of his the bronchi were seen to be distinctly smaller in the state of collapse than later when the collapse had passed off. This scarcely seems a fair contention, as one would expect that in a collapsed lung the bronchi would naturally be smaller.

Sante[5] incorporates the first three views in his theory that the condition is due to simultaneous inhibition of the cough reflex by some toxic or reflex stimulus, with an impairment of the respiratory muscles, caused either by a defensive immobilization or by paralysis from a toxic neuritis. This permits secretion to accumulate and block the bronchus, atelectasis resulting.

In this explanation the mucus plug is the final cause of the atelectasis. As has already been recorded, an atelectasis produced by a mucus plug in animal experiments required four to six hours to develop, but in these animals the inhibition of the cough reflex and the impairment of the respiratory muscles were not present. In cases of immediate collapse, we would suggest that it is the inhibition of the cough reflex and the impairment of the respiratory muscles which produce a reflex spasm of the bronchi and bronchioles (as suggested by Jacobaeus), thus actively expelling the air from the bronchial system, while the mucus plug acts as a check valve, not allowing air to re-enter.

REFERENCES

[1] Jacobaeus, H. C., Selander, G., and Westermark, N.: *Acta Med. Scand.*, 1929, lxxi, 439.
[2] Coryllos, P. N., and Birnbaum: *Arch. Surg.*, 1928, xvi, 501.
[3] Lee, W. E., Radwin, I. S., Tucker, G., and Pendergrass, E. P.: *Ann. Surg.*, 1928, lxxxviii, 15.
[4] Morison, J. M. W.: *British Medical Journal*, 1930, ii, 237.
[5] Sante, L.: *Ann. Surg.*, 1928, lxxxviii, 161.

HOMOLOGOUS ANTIPNEUMOCOCCAL SERUMS IN THE TREATMENT OF LOBAR PNEUMONIA

BY

RICHARD R. ARMSTRONG, M.D., F.R.C.P.

AND

R. SLEIGH JOHNSON, M.D., M.R.C.P.

Serum treatment of lobar pneumonia is no new thing. Fresh interest has been aroused in this subject during recent years by the use, in America, of the "Felton" concentrated antipneumococcal serum. Reports have appeared very recently, from Edinburgh and Glasgow, of the therapeutic application of the concentrate in cases of lobar pneumonia due to infection by the pneumococcal Types I and II. It has been our good fortune, thanks largely to the Medical Research Council, to try this new remedy during the past few months. It will be evident from the account which follows that we believe the antipneumococcal serum to be a remedy of the first importance. There is, however, a strong body of opinion, concerned not so much with clinical evidence as with crude mortality statistics, which inclines to doubt this conclusion, particularly in view of the fact that the mortality, in cases due to Type II infection, has not been shown to be materially reduced. On our part, we seriously doubt whether crude mortality experience affords a true criterion by which the success of this treatment may be judged, for every physician will agree that a great variety of conditions may prejudice the course of pneumonia and lead to the death of the patient, irrespective of the pulmonary condition.

THE FIELD OF INQUIRY

The field of inquiry was limited at first to St. Bartholomew's Hospital. It soon became apparent that the number of cases likely to be available there was small. Grateful thanks are due to the Medical Officer of the London County Council for permission to work, since mid-January, in the Council's highly efficient and well-equipped hospitals at Mile End and Bermondsey; acknowledgements are due to the medical superintendents at each of these hospitals for unrestricted access to cases, and to the members of their medical and nursing staffs for loyal co-operation. Foremost among our allies has been Dr. Gordon Sears at Mile End, whose balanced judgement of the clinical aspect of treated cases has been of superlative value to us. Some cases at the Victoria Park Chest Hospital were also treated.

RAPID METHOD OF DETERMINING PNEUMOCOCCAL TYPE

So far as we know at the time of writing, the basis of our inquiry differs from that adopted in any other investigation of the kind in this country, in that we have determined before administration of serum the serological type of pneumococcus responsible in each case. The method has already been described in a recent number of the *Journal* (February 7th, p. 214). In brief, a mouse is inoculated with the patient's sputum; in four hours or less the animal's peritoneal cavity is explored by acupuncture. The exudate so obtained is mixed on a slide with an equal volume of each of the type agglutinating serums and examined under the microscope. A characteristic change in the appearance of the pneumococci takes place in the case of a positive reaction. The cocci become conspicuously enlarged; if present in considerable numbers they speedily agglutinate. The reaction is quite characteristic and free from ambiguity. Thus in no instance was serum administered unnecessarily, as happened in other hands, in cases due to infection by nondescript pneumococci.

METHOD OF ADMINISTRATION: SENSITIZATION

The most important consideration in serum treatment must be early administration of the largest convenient dose. In the first instance, intravenous medication is essential; by no other route may the desired result be attained. The suggestion of intravenous serum therapy conjures up the dread of anaphylactic shock. This dread is imaginary rather than real; it ceases to be of importance if the simple procedure be observed of keeping a hypodermic syringe containing 1 c.cm. of 1 in 1,000 adrenaline solution always in readiness before giving the serum. One of our patients had a very severe anaphylactic reaction, but this was promptly controlled by subcutaneous adrenaline. It is the rule that first reactions are the most severe, and that subsequent inoculations progressively provoke less shock; the same generalization applies to the rigors and other forms of disturbance of less moment which are occasionally seen. The elaborate tests for sensitization by dropping serum on to the eye or by squirting it into the skin are, we venture to state, as unnecessary as they are apt to be misleading.

VARIOUS SERUMS USED

The serums used have come, partly by gift and partly by purchase, from different sources; our supplies have been very strictly limited. Our gratitude for the gifts is not the less sincere from the fact that we are not at liberty to divulge the donors' names. A concentrate containing antibodies against the pneumococcal Types I and II prepared by Parke, Davis and Co. or by Lederle was used. A similar concentrate, effective only against Type I pneumococcus, from the Wellcome Laboratory, was also given. These concentrates are alike prepared by the Felton method, being derived from the serum protein of immunized horses by precipitation of the euglobulin fraction, associated with the specific antipneumococcal antibodies, in a large volume of distilled water, the precipitate being collected and redissolved. The protective values, per maker's dose (the contents of each phial supplied), of the three concentrated serums used have been accepted for the purpose of this inquiry as approximately equal, a practice which has been justified by the clinical results.

An unconcentrated (horse) serum, Type I, supplied from the Wellcome Laboratory, was also used by us in four cases. This serum was of exceptionally high titre, and was said to be of nearly two-thirds the protective value of an equal volume of the same firm's concentrate. The preparation of concentrate is both difficult and costly, so that therapeutic trial of this unconcentrated serum was not without point. Seeing that the primary object of treatment is administration of the largest possible quantity of antidote at the earliest moment, the conditions of the experiment are scarcely satisfied by the use of the unconcentrated remedy. This view was confirmed by experience in two cases, although in two others of less severity the results were all that could be desired. We concluded that unconcentrated serum should be used only in early cases of moderate severity or in adolescents whose illness it might be desired to abort.

DOSAGE

The considerations which have determined the size and spacing of doses must now be discussed. The reports from Scotland state that a wide range of doses from a minimum of one dose to a maximum of twenty-six was employed there, with an average of six doses per case. Our impression of the system adopted in America is that there five doses per case represented the average requirement.

Although in many cases improvement follows intravenous injection of the remedy, without any disturbance

of the patient's general state, rigors are of frequent occurrence, particularly in cases treated early in the disease. The severity of the reaction seems proportional to the dose. We find that the contents of two phials (a double dose), approximately 20 c.cm. volume, administered with an ordinary 20 c.cm. glass or Record syringe, is generally the maximum desirable ; this dose should be given slowly and cautiously at first. With a sensitive patient or in one subject to bronchitis or asthma, it is better, in our experience, to reduce the dose to one phial. The same conditions apply to the spacing of doses, for if the reaction be severe, six hours is all too short an interval ; eight hours is preferable, and in early cases we have been quite content to begin with a double dose morning and evening, a manœuvre very convenient to the practitioner, who is likely in any event to see his patient twice a day during the acute stage of the pneumonia. Our standard procedure has therefore become: in early cases, an initial double dose followed by a second similar dose, then a final single dose; administration at eight- to twelve-hour intervals ; in later cases, three double doses and a final single dose. These doses have generally sufficed, but it must not be supposed that we have been constrained by any arbitrary considerations, as in every case the clinical indications have been our guide. Thus, in some, three doses have aborted the illness ; while in one case of exceptional severity nine were given. In general terms, however, if a favourable effect does not follow a course of seven doses, we seriously question whether benefit is likely to follow prolongation of serum treatment.

Analysis of Cases

Clinically typical cases of pneumococcal primary lobar pneumonia in adult men and women have been exclusively selected for study or treatment. The series includes no children or old people. The incidence of the pneumococcal types of infection is shown in the table.

Incidence of Pneumococcal Types

Type I		Type II		Type III	Nondescript	Total Cases Investigated
Treated	Untreated	Treated	Untreated			
16	10	10	5	6	47	80

It is generally held that cases due to Type II pneumococcal infection are more severe and more resistant to treatment than cases due to Type I. While admitting this contention, we have not perceived, in the admittedly limited number of cases of each infection treated by us, any marked difference in the response to serum treatment, as we have obtained equally good results in both instances. Let it be strongly emphasized that we have abstained from serum treatment in all cases, irrespective of the pneumococcal type of infection, which were obviously mild and progressing in a favourable manner ; moreover, we have never intervened later in the illness than on the sixth day. The results appear in the tabular analysis which follows, and illustrate the supreme importance of early treatment.

Analysis of Twenty-Six Treated Cases. Types I and II

Day Treated	Result		
	Aborted	Improved	Uninfluenced
Second... ...	6	—	—
Third	3	4	1
Fourth... ...	1	3	—
Fifth	—	3	1
Sixth	—	2	2

Symptomatology of Serum-treated Cases

The effects of treatment by concentrated antipneumococcal serums may be conveniently summarized under two headings: (1) conspicuous immediate results ; (2) characteristic general effects.

Conspicuous Immediate Results

Shock.—We noted in six of our twenty-six treated cases that the first dose of serum was followed by respiratory distress, varying from rapid and shallow breathing, with or without a sense of constriction in the lower chest or round the waist, to urgent dyspnoea and cyanosis, observed in two cases of the series. At the same time, the pulse became frequent and ill-sustained or for a short time barely perceptible at the wrist. The patient's face was livid, the lips colourless, and the eyes sunken. At this moment adrenaline was given, and was followed in every case by rapid cessation of the alarming symptoms. The onset of shock was from five to fifteen minutes after the serum injection ; the phase of discomfort lasted up to half an hour if adrenaline was not administered.

Rigors.—In twelve cases a rigor or shivering attack followed the first injection, the highest level of temperature reached being 105.8° F. In ten cases, a rigor, with lower maxima, followed the second dose ; in four only, the third or subsequent doses. Our experience consistently proves that a brisk rigor following the injection is of favourable import. This phenomenon was specially observed when the Parke Davis concentrate was used, and also with a particular batch of serum concentrate from the Wellcome Laboratories.

Sweating.—Profuse sweating, a constant accompaniment of spontaneous crisis in lobar pneumonia, does not occur with the same frequency when the clinical course of the disease is interrupted by serum treatment, nor is defervescence, following a rigor, necessarily associated with sweating. Thus only six of our patients sweated after the first dose of serum and ten after the second. The presence or absence of sweating gave us no definite indication as to the probable course of the illness.

Cyanosis.—Cyanosis is a characteristic feature in almost every case of lobar pneumonia. Most clinicians believe that this bears no exact relationship to the extent of consolidation in the lung. Indeed, cyanosis is frequently observed long before consolidation has taken place. One of the most remarkable effects of the serum treatment is improvement in the patient's colour. Sometimes after the first dose, usually after the second, the normal complexion returns, so that one may perceive, even at a distance from the bedside, the disappearance of the pneumonic facies. This change often occurs before the pulse and respiration rates have subsided, and bears no relation to the physical signs of consolidation, which are usually better defined than before treatment, corresponding to the course of the inflammatory process in the lungs. We submit that there is considerable probability that cyanosis in lobar pneumonia is a toxic phenomenon due to damage to the alveolar walls by pneumococcal products ; we claim this important evidence of the benign effect of serum treatment as proof of its highly specific action. An analysis of treated cases shows that cyanosis vanished in seventeen cases, was lessened in five, and remained unchanged in two cases which ended fatally. Two other cases were profoundly anaemic ; therefore the characteristic cyanotic tinge was not to be expected. The respiration rate usually falls more gradually after serum treatment than after true crisis More conspicuous is the disappearance of respiratory distress and cessation of the pneumonic grunt.

The Mental State.—Sleeplessness causes as much anxiety as any symptom of pneumonia to the physician in

attendance. Among other mental disturbances are restlessness and anxiety, with confusion of mind and even active delirium. The effects of serum are consistently beneficial in this respect, affording conspicuous relief to the patient. Natural deep sleep for some hours, without the aid of hypnotics, followed the first dose of serum in eleven of our patients, and in seventeen the mental state improved. Of the group of twenty-six cases, nineteen patients slept after the second dose and in twenty-two the mind became clear and composed. The exceptions were afforded by two fatal and two anaemic cases. Proof of the extreme deprivation of rest suffered in the untreated case of lobar pneumonia lies in the well-known fact that after natural crisis the patient will often sleep for days. No such exhaustion was apparent in our cases treated early ; more than once, these patients have personally testified to their intense satisfaction in having enjoyed a night's good rest after the serum.

Albuminuria.—Among the consequences of the pneumonic toxaemia is albuminuria. Urinary tests were not made in every case, but in a number observed daily the disappearance of an albuminuria, often gross, was a constant sequel of treatment. In any event, one of the most frequent subordinate evidences of recovery from the acute stage of lobar pneumonia is diuresis ; this flow is expedited by giving serum.

Characteristic General Effects of Serum Treatment

Whereas it is fair to state that the illness in cases of primary lobar pneumonia untreated by antipneumococcal serum becomes increasingly more serious up to the time of crisis, when within a few hours the picture changes, in cases treated early by the Felton concentrated antipneumococcal serum symptoms progressively abate after the inoculations. In cases in which treatment is begun later the effects are not dissimilar to those observed in normal subsidence by lysis. Slight irregular fever following a course of serum is not infrequent, this happening most often in cases treated late and in those in which scattered bronchitis accompanies the pneumonia. This slight fever, occurring when the height of the disease is past, must not be considered of adverse clinical significance or as evidence that the remedy is inadequate. Success or failure in the serum treatment of lobar pneumonia is to be gauged by the patient's improved general state, in particular by the disappearance of the so-called " toxaemic " symptoms rather than by slavish concentration on minor vagaries in his temperature. Analysis of the 26 treated cases shows that 11 became and remained afebrile following the last intravenous dose of serum, an irregular slight fever persisted for a few days in 12 others, while in 3 cases the temperature did not respond.

The pulmonary condition is not the only consideration in lobar pneumonia. At least an equal measure of attention must be paid to the heart and the general state of the patient. The importance of adequate rest has already been emphasized. We do not propose to digress into a discussion on the control of the pulse rate, although we incline to favour tincture of digitalis, given early in the illness, as a conservator of cardiac energy. We are not averse to the giving of alcohol (whisky or brandy) as required. Cane sugar or glucose may be taken freely, being a food which is easily assimilated and speedily utilized. Returning to serum treatment, this undoubtedly has favourable influence on the alimentary system. After the first, usually, almost invariably after the second, dose of serum, the tongue becomes moist and cleaner ; appetite rapidly returns. It is hardly possible to describe the astonishment we felt on finding a patient who had suffered violent anaphylactic shock and a severe rigor, following serum administration at 11 o'clock in the forenoon, sitting up in bed at 6 o'clock the same evening, when his final dose of serum was due, enjoying tea, bread-and-butter, and a boiled egg. This occurred on the fifth day of an illness which was exceptionally severe before treatment was begun. The inevitable loss of flesh and the asthenia which is a consequence of pneumonia are stayed or prevented if serum is given early in the disease, as on the one hand the illness is aborted and on the other the patient is not called upon to sustain the effects of days of fever and starvation. Hence convalescence is greatly shortened and assisted.

The General Expediency of Serum Treatment

It is appropriate to refer to certain essentially practical aspects of the results of serum treatment. Unquestionably lives are saved, the patient's sufferings are relieved, and the acute anxiety of his relatives is consequently soothed. Other more mundane considerations follow: admitting that the serum is at present costly both to make and to market, in all probability serum treatment represents actual economy. The services of both a day and a night nurse, essential for the case of severe pneumonia, may be dispensed with at an early stage ; visits from the physician, twice daily or more often, soon cease to become necessary, and convalescence is so far accelerated that the wage-earner returns to work in a state of full efficiency, literally weeks before the untreated case. These considerations apply with equal force to the case of the sick in institutions and to the private patient ; it would be exceedingly interesting to offset the expenditure on a course of serum treatment, say ten to fourteen guineas, with a virtual guarantee of speedy recovery, against the alternative cost of a long and serious illness, with prolonged convalescence, in the untreated case.

Serum Treatment of Lobar Pneumonia Complicating Pregnancy

Pregnancy is occasionally complicated by lobar pneumonia, and miscarriage or abortion not infrequently ensues. Two pregnant women were treated by us. One was aged 27 years, with a recrudescence of nephritis, blood and much albumin (1.5 per cent.) in the urine, pregnant 2½ months ; the other had a straightforward pregnancy of 7½ months. In neither case was the pregnancy disturbed, while the nephritic woman left hospital ten days later with only a " cloud " of albumin in the urine and no blood.

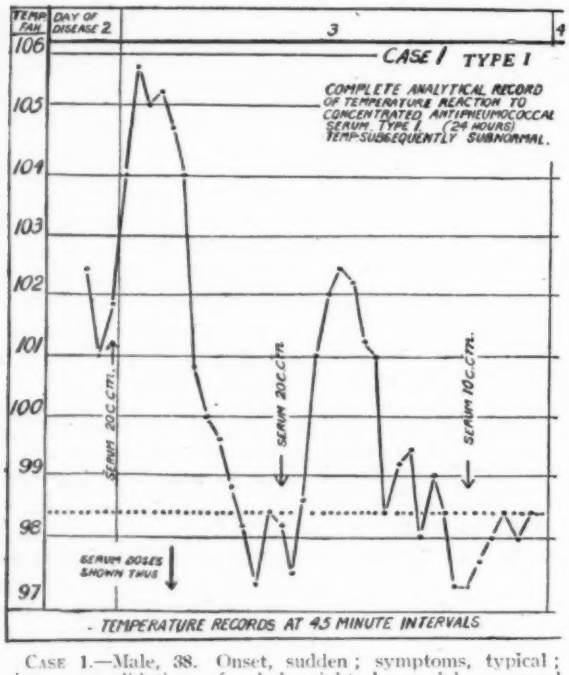
Influence of Serum Treatment on the Physical Signs

We deny, on the basis of our experience, that serum treatment causes delayed resolution of the consolidated lung. We are not entirely in agreement with those who assert that the course of events in the lungs is uninfluenced. Considering cases treated within the first three days from the onset, the physical signs, indicating the course of the inflammatory process in the lung, undergo rapid change, corresponding with the effect of serum in relieving symptoms. Signs of the first stage of resolution, weak or absent breath sounds, replacing bronchial breathing over the consolidated areas, and signs of the second stage—namely, the appearance of the coarse, moist rales found during resolution—follow on successive days, accompanied by rapid diminution of percussion dullness. Correspondingly, the typical viscid, blood-stained, rusty, highly albuminous sputum of early pneumonia, containing scanty alveolar and bronchial epithelial cells, changes in a day to a loose, purulent expectoration, full of polymorphocytes.

These rapid changes are to be likened, in our experience, to those which quickly succeed each other in the very mild cases of lobar pneumonia (albeit due to the pneumococcal Types I and II) occurring in adolescents and to infection

by unclassified strains of low virulence in adults. This class of case commonly ends by crisis on the third day of illness. An important difference exists between these mild cases and the typical severe cases in adult men and women selected by us for treatment—namely, that in the mild untreated cases physical signs are limited in extent. Ample evidence of the potential severity of our early cases was afforded by extensive consolidation of one lung, often accompanied by physical signs on the opposite side, which sometimes progressed, despite treatment, to an area of definite consolidation.

With few exceptions our patients, treated early, complained of pain, frequently at both bases, often referred to the shoulder or abdomen on the side where consolidation was most extensive ; pleural friction was to be heard with the stethoscope. We noted a difference in this respect from the behaviour of untreated cases at the same stage of the disease, and suggest the following explanation. With alleviation of symptoms and restoration of lucid perception, the patients undoubtedly become aware and grumble at lesser discomforts, which are ordinarily masked by the severity of the illness and the confused mental state usual at this stage. Moreover, it is not improbable that the pleurisy is arrested in the so-called " dry " stage before the gross " buttery " fibrinous exudate of late pneumonia has had time to develop. Movements of the chest wall are very limited on the affected side in pneumonia ; the artificial arrest of inflammation by serum undoubtedly relieves this muscular spasm, and so permits a friction between the roughened surfaces of the visceral and parietal pleura. The condition lasts at most two to three days, and is relieved by local applications—a linseed poultice or antiphlogistine.



CASE 1.—Male, 38. Onset, sudden ; symptoms, typical ; signs, consolidation of whole right lower lobe, general bronchitis ; dramatic improvement after first dose of serum ; shock, absent ; resolution rapid ; pleural pain seventh day of disease.

These points are worth noting. We became able, as our experience grew, to reassure our patients, saying that the symptoms were insignificant and would soon pass. We anticipate that the development of new symptoms and fresh physical signs, such as pleural friction on one or both sides of the chest, might well cause apprehension in the mind of the physician, treating his first case with serum, that complications or recrudescence of the pneumonia were pending. There is no cause for alarm.

LATE SERUM EFFECTS

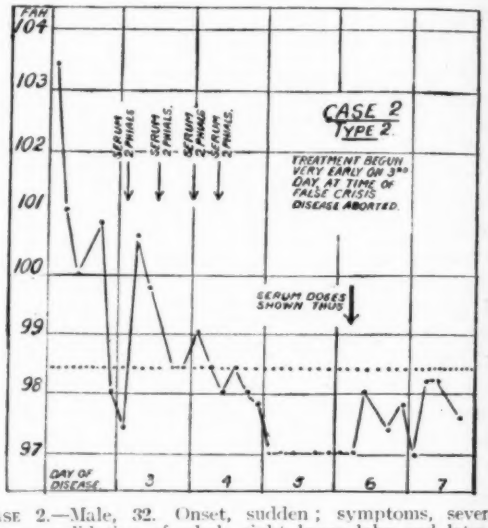
Late effects from administration of therapeutic serums of whatever kind are apt to be disconcerting to the physician, and, particularly in the case of painful or swollen joints, distressing for the patient. Nettle-rash developed in two patients, both of whom had received the unconcentrated Type I antipneumococcal serum mentioned earlier in this paper. Adrenaline injections successfully controlled the irritation. Two patients had a transitory acute arthritis, yielding at once to salicylates—one after concentrated, the other after unconcentrated, serum.

COMPLICATIONS

It is impossible to give an opinion, on the slender basis of twenty-six cases, as to any alteration in the incidence of complications such as empyema, in cases treated by antipneumococcal concentrate. A study of the very extensive American literature on the subject suggests that serum treatment does not prevent these complications.

EXAMPLES OF SUCCESSFUL TREATMENT BY SERUM

We do not question that spontaneous recovery would have occurred, in all probability, in most of our successful cases, but we strongly urge that the remarkable amelioration in the patient's condition which follows serum is more than sufficient justification for our advocacy of this treatment.



CASE 2.—Male, 32. Onset, sudden ; symptoms, severe ; signs, consolidation of whole right lower lobe and later of left base ; marked improvement after second dose of serum ; shock, considerable ; resolution satisfactory ; pleural friction seventh day of illness.

Considerations of space require the omission of full notes on representative cases ; the reader's attention is directed to the charts, illustrating this paper, and to the accompanying legends.

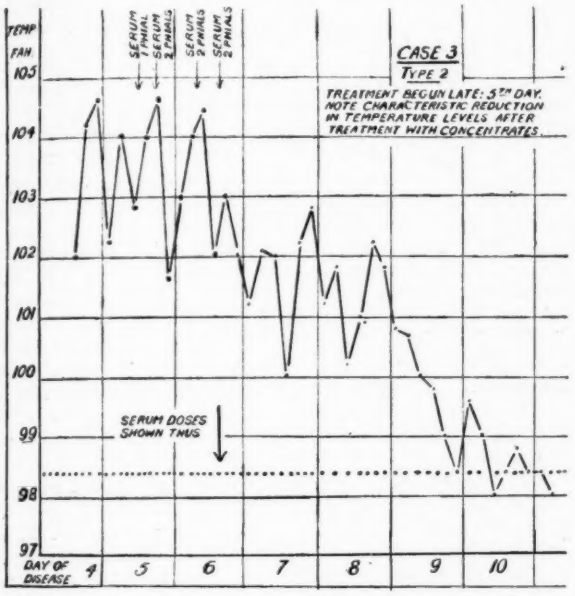
A TYPICAL CASE TREATED BY NORMAL HORSE SERUM AS A " CONTROL "

A case of Type I infection, of average severity at the time of onset, was treated by normal horse serum as a " control " with the object of deciding the possible non-specific effects of horse-serum protein. A course of seven doses, given as usual in three doses of 20 c.cm. and a final dose of 10 c.cm., were given at twelve-hour intervals, beginning on the third day. The patient became steadily worse as his illness progressed unchecked. There was relapse, due to consolidation of the opposite lung, and when the illness ended by a slow lysis, extending over the seventh to ninth days, he was left extremely debilitated, and convalesced but slowly. In fact, physical signs of consolidation in both lungs still persisted three weeks after lysis.

UNSUCCESSFUL CASES

Much stress has been laid on the high mortality in cases of pneumonia with pneumococcal septicaemia. Blood cultures have been made by us in all our severest cases, but in none has there been a positive result. We offer no evidence on this point, but wish to emphasize that the observations made in this paper apply to the sporadic form of lobar pneumonia occurring in the British Isles. It is obvious that this form is far less severe than that which prevails in New York or that responsible for the Rand epidemics a few years ago. Likewise, the small number (26) of cases treated and the method of selection —namely, the choice of (1) early, or (2) severe cases— deprives our mortality experience of significance, for the group is not homogeneous.

There were three fatal cases. One patient (Type I) apparently recovered from his pneumonia with the aid of serum, but died from the results of a surgical operation (reported in the *Journal* of April 25th, p. 701). A second (Type II), our oldest patient, a man aged 60, did not respond to serum given on the fourth day of disease.



CASE 3.—Female, 21. Onset, sudden; symptoms, severe; signs, consolidation of whole right lung and later of left base; gradual improvement after second dose of serum; shock, absent; resolution satisfactory.

Outstanding adverse features were myocarditis, chronic bronchitis, past syphilis, and alcoholism. Death occurred on the fifth day, from heart failure rather than from the lung affection. In a third case (Type II), serum given on the third day of illness was followed by marked initial improvement; misled by this apparently good result, we unfortunately stopped treatment prematurely. The patient became worse. Serum administered after an interval of forty-eight hours was ineffective, and he died.

SUMMARY

1. The course of primary lobar pneumonia, due to the pneumococcal Types I and II, may generally be aborted if treatment with the homologous concentrated anti-pneumococcal serum is begun within the first three days of the disease.

2. The course of primary lobar pneumonia, due to Types I and II, may be favourably influenced if treatment with the concentrate is begun on the fourth or fifth day of the disease.

3. It is doubtful whether the course of the disease is influenced to any extent if treatment is begun later than the fifth day.

4. The contents of five phials or makers' doses, estimated to contain 10,000 standard antipneumococcal units per dose, generally suffice for early cases of Type I infection.

5. The optimum dosage for cases of Type II pneumococcal infection, and for later cases of Types I and II infection, is the contents of seven phials.

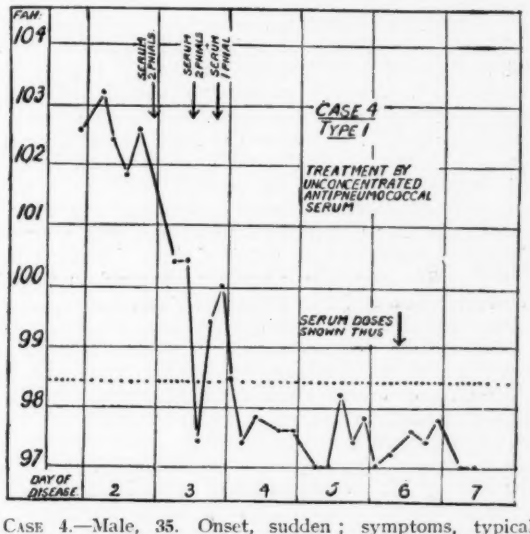
6. The intervals between doses should be not less than six hours, but may be conveniently extended to twelve hours if treatment is begun within the first three days of illness.

7. Unconcentrated antipneumococcal serums of high titre may be used with success for very early cases of moderate severity, and in adolescents.

8. The serum must be given intravenously; by no other route may satisfactory results be obtained.

9. Desensitization is unnecessary; 1 c.cm. of 1 in 1,000 adrenaline solution should be administered subcutaneously whenever symptoms of shock are apparent.

10. The intravenous administration of serum is especially effective in aborting and eliminating toxic phenomena, cyanosis, delirium, etc. The action of the serum appears to be specific.



CASE 4.—Male, 35. Onset, sudden; symptoms, typical but moderate; signs, consolidation of left base; improved after first dose of serum; disease aborted; resolution accelerated, almost complete on seventh day.

11. Considering the cases of Type I and Type II infection together, of 26 cases 18 were treated by antipneumococcal serums within the first four days of the disease. In 10 of these the pneumonia was aborted and in 7 improvement was apparent. One patient showed initial benefit, but relapsed and died. Eight were treated with serum on the fifth and sixth days; five were improved, and three uninfluenced. These results sufficiently illustrate the supreme importance of early treatment.

CONCLUSION

A final word of explanation of the form of this communication is perhaps desirable. It is a common mistake to claim too much for a new remedy; indeed, the field we have entered has been beset for years by enthusiastic advocates of a variety of medicaments. Good effects in two or three cases might be attributed to coincidence or to unconscious favourable selection, but any such influences may be excluded without misgiving when consecutive experience confirms first impressions. The accounts of treatment in America are widely scattered through the literature, and not easily accessible to most English readers. We pay homage to the workers across

the Atlantic and to those in Glasgow and Edinburgh, and pray to be excused detailed reference to the work of others; we do not wish to overload our text.

We have tried to convey to the practitioner a clear impression of what takes place at the bedside, and to guide him in dosage and in the treatment of emergencies. To those who are interested, we offer the advice to apply the remedy to the first suitable case that arises in their practice.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

FRONTAL SINUSITIS WITH INTRACRANIAL SUPPURATION AND INVASION OF BLOOD AND CEREBRO-SPINAL FLUID BY DIFFERENT ORGANISMS

The following is a record of a case of acute frontal sinus suppuration terminating in meningitis, and presenting some unusual bacteriological features.

On April 25th, 1930, a male, aged 28, was admitted to the ear, nose, and throat department suffering from oedema of the left conjunctiva of three days' duration, limitation of eye movement, and proptosis.

On investigation there was definite tenderness over the left frontal sinus, and transillumination showed the left frontal area to be dark. *X*-ray examination disclosed little difference between the two sides. Next day a Howarth's operation was performed by Dr. J. S. Fraser; a little pus was present in the ethmoidal and left sphenoidal sinuses, but in the left frontal sinus there was a large quantity which, when tested, showed a *Staphylococcus aureus* infection. For three days after operation the temperature was high, and a growth of *Staphylococcus aureus* was obtained in a blood culture on April 29th. The next day abscesses appeared in the gluteal and deltoid regions. From the pus obtained by opening and draining these abscesses a *Staphylococcus aureus* was again cultured.

During the next fortnight the temperature continued to swing, and, on examination of the lungs, signs of old tuberculous lesions with definite cavities were found at both apices. The sputum contained no *B. tuberculosis*, but many organisms of the strepto-pneumococcal group. From blood culture on May 14th a very strongly haemolytic streptococcus was found. The patient improved to some extent, and blood culture a fortnight later was negative, although the temperature continued to swing. On June 4th he complained of headache and became mentally abnormal, refusing to speak but willing to do anything he was asked. The following day there developed paresis of the muscles below the left eyebrow and of the right arm. The knee-jerks were brisk and abdominal reflexes present. There was no ankle-clonus, but there was an extensor plantar reflex, a positive Kernig's sign, and some difficulty in swallowing. On lumbar puncture the cerebro-spinal fluid was turbid and under pressure, and a *Pneumococcus mucosus* was found. This was non-haemolytic, inulin-fermenting, bile-soluble, and agglutinated by Type III serum.

The patient died on June 6th. Post-mortem examination showed intradural and extradural abscesses over the left frontal lobe, with chronic osteomyelitis of the left frontal bone, and cario-necrosis of the roof of the orbit extending to the roof of the sphenoidal sinus. There was also an early well-marked leptomeningitis. On bacteriological examination of the pus from the intradural abscess two organisms were found—namely, a *Staphylococcus aureus* and a *Pneumococcus mucosus* (Type III).

The striking feature of this case is the variation of the type and origin of the infecting organism at different periods of the illness. In all, three distinct organisms were found—namely, *Staphylococcus aureus*, haemolytic streptococcus, and Type III pneumococcus. In the early stages a *Staphylococcus aureus* infection was predominant, the source of this being presumably the infected frontal sinus. Later, however, a haemolytic streptococcal septicaemia developed, the organism probably having its origin in the lung condition. Unfortunately, a more complete examination of the sputum was not carried out, as at this time the significance of this source of blood infection was not fully realized. Finally, *Pneumococcus mucosus* was found in the intradural abscess along with *Staphylococcus aureus*, while the Type III pneumococcus was alone responsible for the infection of the cerebro-spinal fluid.

I wish to thank Dr. J. S. Fraser for his kind permission to use the case notes, and Dr. W. R. Logan for his guidance in the bacteriological work.

JOHN A. BURGESS, M.B., Ch.B.,
Assistant Bacteriologist, Royal Infirmary, Edinburgh.

SPONTANEOUS PROLAPSE OF UMBILICAL CORD DURING EARLY MONTHS OF PREGNANCY

Spontaneous prolapse of the umbilical cord during the early months of pregnancy appears to be of sufficiently rare occurrence to justify a brief description of the following case.

Mrs. S., aged 37, engaged me to attend her at her confinement. She had had three children, the eldest being 16, and all previous confinements were normal. The patient had been under my care for about a month, receiving a course of intensive alkali treatment for gastric ulcer, and it was during the convalescent stages of this complaint that I made the routine ante-natal examination. All pelvic measurements were normal, and the uterus corresponded in size to a pregnancy of five months' duration. Foetal heart sounds could be heard quite distinctly, and, apart from a very slight degree of uterine prolapse, there were no abnormalities worthy of record.

A few days later I received a message from the patient requesting me to visit her immediately as "her inside had come down." Upon my arrival she explained that during the early hours of the morning she had discovered something protruding from the vagina, but had not experienced any symptoms suggestive of labour pains or abdominal discomfort of any description. There was a loop of normal pulsating cord, measuring about eight inches, protuding from the vagina, but apart from this the cervix would only admit the tip of the index finger. There were no uterine contractions.

It was evident that the only line of treatment to be adopted in this case was to encourage the early onset of labour. This was accomplished by the administration of continuous hot rectal saline, and pituitrin in 2.5 unit doses when pains threatened. Labour commenced about eighteen hours after the prolapse of the cord, and the subsequent history of the case was uneventful; the foetus and placenta were entirely free from abnormalities.

M. HAWKE, L.R.C.P., M.R.C.S.,
Tollesbury, Maldon. L.M.S.S.A.

Reports of Societies

OBSESSIONAL NEUROSIS

At the meeting of the Medical Society of Individual Psychology on May 14th, with the president, Dr. O. H. WOODCOCK in the chair, Dr. M. C. LUFF read a paper on a case of obsessional neurosis.

After a brief summary of the chief features of interest presented by the case, Dr. Luff considered these and other points in more detail. The patient was a married woman, aged 30. The obsessions of which she complained showed a close relation to schizophrenia. This finding suggested that in this case there was no clear demarcation between psychoneurosis and psychosis—a possibility which further study of the case served to confirm. Thus neither the fears from which she had suffered from the age of 7, nor

similar symptoms which arose in the course of treatment, could be clearly differentiated from delusions. The same lack of true insight was displayed in the way in which she associated herself with crimes read of in newspapers. Her style of life illustrated in many ways Adler's views as to the mechanisms which might underlie neurotic symptom formation. A pampered only child, she was ill adapted to meet any rebuff to her wish for complete domination. Her hostility to her father was largely connected with the fact that he teased her. Attempts to educate her away from home had to be abandoned because she was so unhappy at school, feeling that the girls did not like her. Ill adjusted to the demands of society, she was equally so with regard to sex. With romantic fantasies of the ideal husband, she married a man whom she despised. She came for treatment two years after marriage, and normal sexual relations were established only as a result of psychotherapy.

THE PSYCHOLOGICAL FACTOR IN THE RHEUMATIC SYNDROME

Dr. M. B. RAY read a paper on the psychological factor in the rheumatic syndrome. He prefaced his remarks by a survey of the predisposing and exciting causes of rheumatism. From this point he passed on to matters of a more general nature. He defined environment as that "which embraces everything that interacts in any way with the individual, be it a group of cells or the whole." He considered that it was the quality of this interaction which determined good or bad function. As an example, he pointed out that it was because the autonomic and endocrine systems helped to maintain such a dynamic equilibrium that they were essential to health. Certain observations indicated that rheumatoid arthritis might be related to a permanent autonomic imbalance. The possibility that this finding might be in part dependent upon psychological factors was suggested by the well-known clinical fact that mental states might exert a profound effect upon the autonomic endocrine balance, and vice versa. He had found clinical confirmation for this *a priori* assumption in his work at the clinic of the British Red Cross Society. He could recall several cases of hydrarthrosis which had been due to sudden mental shock. Rheumatoid arthritis was most common in women. Brachial neuritis and sciatic neuralgia attacked more particularly worrying, anxious people. He concluded with a summary of several case histories in which the rheumatic condition seemed to have been psychologically determined.

INTRACRANIAL COMPLICATIONS OF EAR DISEASE

At the last meeting of the Section of Laryngology and Otology of the Royal Academy of Medicine in Ireland, with the president, Sir ROBERT WOODS, in the chair, Dr. HORACE LAW read notes on two cases of aural disease with intracranial complications.

The first was a case of lateral thrombosis with fatal termination due to lung abscess. The patient, a girl of 18, was brought to hospital on August 4th, 1930, suffering from pain in the right ear, together with high fever. The history was that for a fortnight these conditions had existed, accompanied by tenderness and a grave amount of constitutional disturbance. On examination, there was tenderness and some swelling behind and above the right ear; an acute inflammation of the drum was found, with a copious discharge. There was no swelling over the mastoid or in the tissues of the neck. The internal jugular vein could not be palpated, and there was no sense of discomfort on deep pressure in the neck. An ordinary radical mastoid operation was done, a large periosteal abscess being found, with cholesteomatous debris in the antrum and middle ear. There was no indication to proceed further, as enough had been found to account for the high temperature and pain. Three days later, however, the patient had two rigors. The lateral sinus over a large area was at once laid bare, and a perisinutic abscess revealed; the sinus was soft, and showed no signs of thrombosis; the condition of the neck was exactly as mentioned above. Unfortunately this procedure seemed to make no difference to the condition of the patient, who still ran an extremely high temperature, going up most nights to 104° F. Injections of S.U.P. 36 and scarlatina antitoxin were tried, but had no influence on the course of the trouble. Eleven days after this operation the patient again had another rigor, and her condition was so serious that Dr. Law decided to cut down on the jugular vein. He opened the sinus above, which bled freely. The jugular vein was not easy to locate, as the tissues were extremely disintegrated, and the vein itself very soft. It was found to be full of pus as far down as the root of the neck. The wound was plugged and left open. A probe was passed up to meet another in the jugular bulb; this portion was proved to be patent. The local condition steadily improved, but the patient developed definite lung symptoms and began to expectorate evil-smelling sputum. Haemorrhages supervened, one of which proved fatal on September 6th.

The second patient was a female, aged 17, who was brought into hospital on November 21st, 1930, in an unconscious condition. The history was that she had acute otitis some days previously, growing rapidly worse and becoming unconscious on the morning of the 21st. Beyond the discharge from the ear it was not possible to make any definite diagnosis. Dr. Bewley saw the patient and found the reflexes fairly normal; there were no gross eye signs. He made a lumbar puncture and withdrew 50 c.cm. of fluid, under pressure, but quite clear. Dr. Law at once did a radical mastoid, laying bare the sinus and breaking down the tegmen tympani. In the groove of the sinus and under the tegmen were found fairly large subdural abscesses. When that of the tegmen was opened, the patient at once stopped breathing, though the heart remained strong and the pulse regular. She was kept alive partly by artificial respiration and partly by intratracheal oxygen, and the rest of the operation was completed as mentioned above, leaving the area wide open. The following remedies were used in an effort to make her breathe: oxygen, carbon dioxide, stimulants, strychnine 1/10 grain, pituitrin, **sterile** saline intrathecally. These various attempts were continued for four hours, the pulse remaining good throughout; after that time, as there seemed to be no prospect of any natural respiration, the attempts were given up.

Dr. T. G. WILSON, referring to the second case, said that when respiration ceased in these circumstances a cerebellar abscess was usually present, and its evacuation was usually followed by restoration of respiration. Dr. GEOFFREY BEWLEY said that he had performed the lumbar puncture, and that he did not think the cessation of respiration was due to this procedure, notwithstanding the large amount of fluid drawn away. He thought some more serious intracranial trouble was present. Mr. A. A. MCCONNELL suggested three methods of restoring respiration which had proved successful in cases of cerebellar tumour. These were: (*a*) changing the position of the head, from flexion to extension, or vice versa; (*b*) putting the patient into the Trendelenburg position; and (*c*) opening the foramen magnum.

Dr. LAW, in replying, said that permission for a post-mortem examination had been refused.

Others who contributed to the meeting were Dr. P. J. KEOGH, who showed a case of papilloma of the right vocal cord; Dr. R. R. WOODS, who read notes on a condition he described as vallecular dysphagia, and on a case of abscess of the temporal lobe; Dr. P. DEMPSEY, who showed a case of epithelioma of the fauces successfully treated by diathermy; Dr. T. O. GRAHAM, who demonstrated two successful results of the operation for lateral sinus thrombosis; and Dr. T. G. WILSON, who read notes on a case of temporal lobe abscess in a child of 9 months, and on a case of perisinus abscess with purulent meningitis.

Reviews

FORENSIC MEDICINE

Two textbooks on forensic medicine from American sources have recently appeared. One of these, written by ELMER D. BROTHERS[1] of the Chicago Bar, deals almost entirely with the legal aspect of the subject, and gives a clear exposition of the law as it affects the medical practitioner. Although the outlook is essentially American there is much to interest English readers. The author clearly defines the contractual relations existing between the physician and his patient; he goes into the question of civil and criminal malpractices and the legal liabilities that may arise out of the negligence of nurse, assistant, or partner. In discussing the question of torts, he raises a point which appears amusing to us over here—namely, the question of false advertisement and fraud by physicians. He cites decisions where patients have sued practitioners for fraudulently guaranteeing to cure certain diseases known to be incurable. In one instance a person was positively assured that he could be cured, and on this assertion he gave a written agreement to pay 500 dollars. He was suffering from the effects of a fractured base, and when he found that no cure was possible he successfully sued the doctor and institution for fraudulently obtaining his money. The manner in which such cases of "infamous conduct" are dealt with, if they are subject to the control of any professional body, is not disclosed by the author. The section containing miscellaneous legal information is of much interest. Mr. Brothers devotes about fifty pages to the medical aspect of his subject, and the least said about this section the better. There are many mistakes, and the author would be well advised either to omit this part altogether or have it revised by a medical specialist. The book is, in general, good reading, and if the author is weak on the medical side he certainly gives us some very interesting material from the legal side. While not of great value to the medical practitioner, and even of less to the medical student, it has its place on the library shelves of universities and institutions.

The second book[2] is from the pen of Dr. RALPH WEBSTER, professor of medical jurisprudence in Chicago University, and co-author of the well-known textbook by Petersen, Haines, and Webster. We should not have expected any dearth of material for the medical jurist practising in Chicago, and were the more surprised to find an almost complete lack of original matter. In fact, the constant references for details to other sources, particularly to Petersen, Haines, and Webster, suggests that it might be better to read the original in the first place. The book lacks proportion, undue prominence being given to certain sections at the expense of others equally important. Thus, toxicology accounts for about 500 out of the 800 odd pages in the book, and though the author says that "wounds involve the medical practitioner in court proceedings more frequently than any other cause," he devotes only thirty pages to this important part of legal medicine. On the other hand, twenty-three pages are given to ethyl and methyl alcohol; a fact not without significance when we consider that the author is dealing with a prohibition country. The technique for the examination of blood-stains is well described, and the chapters on various forms of violent death, infanticide, rape, etc., follow conventional lines. There is in general, however, a lack of practical detail, which greatly detracts from the value of the book. For example, there is no instruction in the method of performing a post-mortem examination, and exhumation is not even mentioned; there is no description of wounds in various parts of the body, and even such things as fractures of the skull, cerebral haemorrhage, concussion, compression, etc., are not mentioned. No information is given about the identification of firearms and projectiles, or on the examination of powder residues, although firearm injuries would appear to be of considerable importance in the United States in general, and in Chicago in particular. The toxicological section is easily the best part of the book, indicating clearly that the interests of the author are chemical and analytical rather than clinical and pathological. The action of poisons and their isolation and detection are discussed in a practical manner, as by one quite at home in this branch of work. The precautions in connexion with the prescribing, dispensing, and sale of poisons, however, are not mentioned, although the Harrison Law and the Volstead Act, with references to narcotic and alcoholic substances, are discussed in the earlier pages. In the general sections of the book we find much material which is both interesting and instructive, and which gives a basis for comparison of our own methods and statutes with those of the United States. For example, there has been for some time in this country a growing feeling of dissatisfaction with the coroner system, and it is with interest that we note the rapid replacement of coroners in America by medical examiners, whose duty it is, when called upon, to investigate the medical facts in all cases where the cause of death is unknown. The author adds his quota of praise for the new system. The book is well printed and bound, but would be much improved by the introduction of more illustrations; the illustrations given are not original, and do not cover the range of the subject-matter sufficiently. With such gaps in it, the book can hardly be recommended to the student or to the general practitioner, but will be of interest to the specialist in forensic medicine.

[1] *Medical Jurisprudence*. By Elmer D. Brothers, B.S., LL.D. Third edition. London: H. Kimpton. 1930. (Pp. 209. 15s. net.)

[2] *Legal Medicine and Toxicology*. By Ralph W. Webster, M.D., Ph.D. Philadelphia and London: W. B. Saunders Company. 1930. (Pp. 862; 46 figures. 37s. 6d.)

STREPTOCOCCI AND SCARLET FEVER

The view that a streptococcus is the specific cause of scarlet fever is now generally, although not universally, accepted. The grounds on which this conclusion is based are discussed in great detail in the elaborate work of Drs. DAVID and ROBERT THOMSON on "The Rôle of the Streptococci in Scarlet Fever," which forms the sixth volume of the *Annals of the Pickett-Thomson Research Laboratory*.[3] As is well known, a streptococcus is to be found in the throat in almost every case of scarlet fever, and it has been proved experimentally in human volunteers that the disease may be produced by swabbing the throat with pure cultures of the organism. It has also been contracted in the laboratory by persons working with the streptococcus. In 1924 Dick and Dick made the important discovery that this streptococcus produces an exotoxin, demonstrable in Berkefeld filtrates, which, when injected into susceptible persons, is capable of producing the general malaise, nausea, vomiting, fever, and rash which characterize the spontaneous disease. The same observers have also shown that the filtrate may be used, by intradermal injection, as a test of the susceptibility and non-susceptibility to the disease; for example, of 20,856 persons whom the Dick test indicated as non-susceptible, none contracted the disease after passing through one or more epidemics. It has been further shown that the immunization of susceptible persons may

[3] *Annals of the Pickett-Thomson Research Laboratory*. Vol. vi: The Pathogenic Streptococci: The Rôle of the Streptococci in Scarlet Fever. London: Baillière, Tindall and Cox; Baltimore: The Williams and Wilkins Company. 1930. (Pp. xiii + 470; 13 plates. £2 2s. net.)

be effected by injections of the toxin or of antistreptococcic horse serum, and also by vaccination.

The evidence in support of the streptococcal origin of scarlet fever is therefore very strong; and the modern view of its pathogenesis suggests an analogy with that of diphtheria—namely, that the disease is a local infection of the throat and cervical glands, while the general symptoms are the result of the circulation of a soluble exotoxin. Some have thought that the presence of streptococci in the scales is evidence of the transmission of the organism through the blood, but Deicher has found that patients who have been bathed and are still desquamating show no streptococci in the scales. Apart from the propagation of the disease through contaminated articles, such as milk, the authors consider that the chief mode of spread is by droplet infection from the respiratory tract, especially of human carriers such as discharged convalescents and missed or mild cases without the typical rash. The frequency of this mode of propagation is sufficient to explain the inefficiency of such measures as isolation, disinfection, and fumigation, in controlling the disease. The highly technical question of the precise relation of the streptococcus to other haemolytic streptococci appears to be still *sub judice*; the authors incline to regard it as a distinct species.

The authors deserve high praise for the accomplishment of what, without exaggeration, may be called their stupendous work. They have apparently brought together the entire extant information on the subject in a form which seems to render a reference to work of earlier date superfluous. An inspection of the copious index to the volume will give some idea of the immense amount of detail included in the review, which has entailed an analysis of some 1,400 publications. The monograph is the eleventh of a series on the pathogenic streptococci, the earlier fasciculi of which were referred to in the *Journal* of August 3rd, 1929 (p. 206). The streptococci of erysipelas and skin diseases will form the subject of a volume which is due to appear in the present year.

THE VISCEROGRAPHIC METHOD

The introduction of the graphic method in the investigation of the physiology and pathology of the circulation was so fruitful of results that it is surprising that it was not immediately adopted in the study of other contractile organs. The first attempt at the systematic employment of the method in the latter was undertaken by Professor DANIELOPOLU in 1921, although isolated observations had been made before that date by Morat, Coulson, and Cannon. Professor Danielopolu has since been engaged in an extensive research, a detailed account of which is contained in his work on the Viscerographic Method.[4] The apparatus employed is simple, consisting of a hollow sound with a bladder tied to its extremity; this is introduced into the organ, and the bladder, by a suitable mechanism, is distended to the desired degree of tension. The variations of tension produced by the contractions of the organ are registered in the usual way in the form of a curve on a revolving drum with smoked paper. The method has the advantages of being exact and giving measureable results, and of being directly applicable to the human subject, as a clinical procedure. By its means the physiology, pathology, and the normal and pathological pharmacology of the motility of the contractile viscera have been studied in connexion with the oesophagus, stomach, intestines, and bladder, with results which leave no doubt of the value of the method.

Professor Danielopolu has in the first place described the normal curve of motility for the organs mentioned, in connexion with which he has some interesting facts to record relating to the reflex mechanism concerned. He next describes the oculo-visceral reflexes, the influence of sleep on motility, and the action of hyperventilation of the lungs. The pathological conditions studied include tetany, stenosis and spasm of the oesophagus, and pyloric stenosis; the pharmacological section deals with the action of atropine, adrenaline, calcium salts, eserine, pilocarpine, papaverine, insulin, ephedrine, and tobacco. In the course of his investigations the author was able to explain certain discrepancies which have been thought to exist between the action of the vegetative nervous system on the circulatory apparatus, and its apparent action on other hollow viscera. The more exact results obtainable by the viscerographic method have shown that the same rules hold good in the alimentary tract and bladder as in the circulatory system. The book is illustrated with a large number of viscerograms, which render the author's descriptions easy to follow.

[4] *Die viscerographische Methode.* Von D. Danielopolu. Berlin: S. Karger. 1930. (Pp. 166; 130 figures. M.7.20.)

PROTOZOOLOGY

The study of the unicellular animals has made considerable advances in the past twenty years, and the protozoan parasites are now regarded as one of the most important factors in the development of tropical countries. This has stimulated general interest in the group as a whole, and many universities and colleges now offer courses dealing with both free-living and parasitic protozoa. It is to meet the need of such classes that a *Handbook of Protozoology*,[5] by R. R. KUDO, has been published. Most modern publications on the subject emphasize the parasitic forms, and do not give much space to the taxonomy, biology, and orientation of the free-living forms from which the parasitic group has been evolved. The present work therefore provides a handbook of introductory information on the common and representative genera of all the groups of protozoa. It is divided into two parts: an introductory section of three chapters giving a general account of the morphology, physiology, and reproduction of the protozoa, and a larger second part which deals with the taxonomy, biology, and development of common forms. Each chapter concludes with a list of important references, which serve as guides for more intensive study. The book is lavishly illustrated with line drawings, mostly under a comparatively low magnification, so that they can be of the greatest practical value to students using the ordinary powers of the microscope. There is, finally, an appendix on collection, cultivation, and observation, and an adequate subject and author index.

The book is an excellent one, within the limits set by its author, and will be of considerable value as a textbook to all interested in a general account of the phylum.

NOTES ON BOOKS

A second edition of *A Text-Book of Medicine*,[6] by American authors, has recently made its appearance under the editorship of Dr. RUSSELL L. CECIL, with whom is associated Dr. FOSTER KENNEDY in the section devoted to diseases of the nervous system. It is little more than two years since a review of the book appeared in these columns, so that it is only necessary to say that the whole work has been thoroughly revised and reset. Since the first edition was published death has claimed five of the contributors, including that eminent Japanese Dr. Hideyo Noguchi, who wrote the chapter on yellow fever. The places of these men have been taken by others

[5] *Handbook of Protozoology.* By Richard R. Kudo, D.Sc. London: Baillière, Tindall and Cox. 1931. (Pp. x + 454; 175 figures. 25s. net.)

[6] *A Text-Book of Medicine*, by American Authors. Edited by Russell L. Cecil, M.D., Sc.D.; Associate Editor for Diseases of the Nervous System, Foster Kennedy, M.D., F.R.S.E. Second edition. Philadelphia and London: W. B. Saunders Company. 1930. (Pp. xxv + 1592; 30 figures. 40s. net.)

equally distinguished in the special subjects with which they deal. Several new articles have been added, and the work has been brought thoroughly up to date. It can be recommended as a safe guide for all—students and practitioners alike.

Volume xi (Metabolic Diseases) of "Medical Practice"[7] will prove a useful addition to the preceding volumes. It aims at being comprehensive, and has succeeded. There can be few conditions classifiable as disorders of metabolism which do not receive mention. Its length, however, is only 118 pages (excluding the bibliography and index), and, as would be expected, the treatment accorded to each disease is but brief. The author has endeavoured, not without success, to bring out the salient points about each condition. The amount of space devoted to treatment is perhaps, in most cases, shorter than is altogether advisable.

The Diet Book,[8] by Mrs. MARGUERITE REQUA REA, will prove a compact and useful guide to medical men who are concerned with the practical and culinary details of dietary—and most medical men are, from time to time, so concerned. It should also be of service to the housewife in carrying out the doctor's directions.

The eighth volume of *Allen's Commercial Organic Analysis*[9] deals with glucosides and with the vegetable bitter principles which are not glucosidal. It also includes an account of enzymes, animal bases and acids, cyanogen compounds, proteins, and the digestion products of proteins. These volumes afford ready access to the kind of information which would otherwise be obtainable only from original publications. Organic analysis is peculiarly dependent for success in its general practice on information which is wanted only at rare intervals. The purpose of the work would be partly fulfilled if the book did no more than provide this information in assorted form; but it does much more. Great care and much labour have been bestowed on the arrangement and co-ordination of the subject-matter for the purpose of saving the reader's time and effort. Thus for the glucosides, a diverse class of substances difficult to classify, a table of some 140 varieties is given, showing the source of the substance, its chemical formula, melting point, specific rotation, and the products resulting from its hydrolytic cleavage. The other chief essential in a book of this character is also well provided for—namely, technical directions for the laboratory worker, which vary much in different circumstances. Under hydrocyanic acid, for example, special attention is given to methods of recognition and determination of the substance in cases of poisoning.

In his *Selected Readings in the History of Physiology*[10] Dr. J. F. FULTON, who, after several years' residence at Oxford as Fellow of Magdalen College, was recently appointed Sterling Professor of Physiology at Yale University, has collected a number of passages illustrating various branches of physiology from Aristotle down to F. G. Banting. The work is divided into eight chapters, dealing respectively with general principles, the circulation of the blood, the capillaries, respiration, digestion, muscle and peripheral nerves, the central nervous system, and miscellaneous subjects. The selection from each writer is prefaced by a short account of the man and his work, and the text is freely interspersed with portraits, facsimiles of title-pages, and other illustrations from the works of the older physiologists. Dr. Fulton is to be congratulated on his selection of the extracts, many of which are from works not readily accessible, as well as on his translation of foreign writers and his judicious comments. The work should appeal not only to the medical graduate interested in the history of medicine, but also to the medical student, who, as Dr. Fulton remarks in his preface, will realize from its perusal that men as young as himself have made important contributions to physiology.

[7] *Medizinische Praxis*. Herausgegeben von L. R. Grote, A. Fromme, K. Warnekros. Band xi: *Stoffwechselkrankheiten*. Von Dr. med. Erich Leschke. Dresden und Leipzig: T. Steinkopff. 1930. (Pp. x + 130. R.M.8.)

[8] *The Diet Book*. By Marguerite Requa Rea. With a foreword by Sir James Purves-Stewart, K.C.M.G., C.B., M.D.Ed., F.R.C.P. London: Milford, Oxford University Press. 1931. (Pp. xii + 197. 7s. 6d. net.)

[9] *Allen's Commercial Organic Analysis*. Vol. viii. Edited by C. Ainsworth Mitchell, D.Sc., F.I.C. Fifth edition, revised and partly rewritten. London: J. and A. Churchill. 1930. (Pp. x + 761; 31 figures. 30s.)

[10] *Selected Readings in the History of Physiology*. Edited by John Farquhar Fulton, M.D. London: Baillière, Tindall and Cox. 1930. (Pp. xx + 317; 60 figures. 22s. 6d. net.)

PREPARATIONS AND APPLIANCES

PHRENIC EVULSION FORCEPS

Mr. WALTER MERCER, F.R.C.S.Ed. (Edinburgh), writes:

In performing the operation of phrenic evulsion the phrenic nerve is exposed in the neck under a local anaesthetic and grasped by fairly strong forceps. The nerve is then divided above the forceps, and pulled slowly out from the chest cavity. The evulsion has to be very slowly proceeded with, so that the nerve will be removed in as great a length as possible. If it is pulled out too strongly or too quickly the nerve may break. If this breakage occurs above the communicating branches which reach it below the clavicle, the diaphragm will still receive nerve impulses from these branches, so that the operation will be useless.

By experience one finds that the best way of controlling this gradual pull on the nerve is to rotate the forceps and wind the nerve on to them very slowly. If ordinary forceps are used the nerve slips off the end, since the forceps cannot be kept on the same plane as the nerve, which lies at the bottom of the fairly deep wound. To overcome this minor difficulty these forceps were produced. The round tip projects from the edges of the blade, and so prevents the nerve from slipping over it. The blades themselves have longitudinal grooves, assuring a good grip of the nerve. The forceps should be of a fairly heavy type, as this ensures a firmer and more complete control of the amount of force required.

The forceps are made by Down Bros. Ltd., London.

"BAROLAC": BARIUM SULPHATE IN SUSPENSION

We have received from Burroughs Wellcome and Co. a sample of their brand of barium sulphate for x-ray purposes, made up in the form of 30 per cent. suspension. The appearance of the liquid is of milky whiteness; it is quite odourless, and neutral to the taste, as well as of satisfactory bulk, and the manufacturers give an assurance that it is entirely free from soluble barium salts. The suspension is very smooth, and the salt is in so finely divided a condition that no mucilaginous agent like tragacanth is necessary for effective distribution of the particles. The absence of anything disagreeable from the meal makes flavouring agents unnecessary, but vanilla, saccharin, or cocoa can be added if desired. The name of "barolac" has been given to this preparation, which is issued in Winchester quarts.

OVARIAN HORMONE

Theelin is a solution of the active crystalline ovarian hormone prepared by Messrs. Parke, Davis and Co. The crystalline substance is stated to have an activity of 3 million rat units per gram. The solution contains 50 rat units per c.cm., and is recommended for use subcutaneously in doses of 1 to 2 c.cm. daily.

Intensive investigation is at present proceeding on the therapeutic use of the follicular hormone. The isolation of the pure active principle is a great advance, but the dosage required to produce a therapeutic action in a woman is still very uncertain. There appears to be a general agreement that the use of this hormone is more likely to be attended with success in cases of secondary amenorrhoea than in cases of primary amenorrhoea.

ISCHAEMIA OF MUSCLE AS A CAUSE OF ANGINAL PAIN

ST. CYRES LECTURE BY SIR THOMAS LEWIS

Sir THOMAS LEWIS delivered the St. Cyres Lecture at the National Hospital for Diseases of the Heart on May 14th, with Dr. FREDERICK PRICE in the chair. The subject of the lecture, of which the following is an abstract, was ischaemia of muscle as a cause of anginal pain.

The lecturer said that when he referred to angina pectoris he would follow Heberden in employing this term as the name of a specific disease. He did not intend to touch on the general pathology of angina pectoris, but only on the origin of the pain, which was one of its leading symptoms. The cause of this pain had been the subject of much theoretical debate since Heberden gave the first classical description of the disease. In those early days it was discussed by the Gloucestershire Medical Society, of which Edward Jenner was a member, and it was Jenner who first considered that angina pectoris was a disease arising from an affection of the coronary arteries. In a letter he wrote to Heberden he stated that it was the function of these arteries which was affected. Later Parry put plainly the case for arterial disease. He recognized that the rigidity of arterio-sclerotic coronary arteries impeded the blood flow to the cardiac muscle, and that though sufficient blood might pass to nourish the muscle when the patient was at rest, the quantity might be inadequate during vigorous activity. He believed, therefore, that under unusual exertion the power of the heart failed, and that paroxysms of syncope anginosa arose in consequence. While this was an explanation of angina pectoris, it did not account for anginal pain. Parry's book on syncope anginosa was one of his best-known works, but he was even better remembered for the term "syncope anginosa" itself; he considered that many cases of angina pectoris were associated with syncope, but subsequent experience had shown that he was wrong. Syncope was rare in anginal attacks.

In 1809 Allan Burns drew an analogy between the heart in angina pectoris and the deficient nourishment of a limb "begirt by a ligature." The heart, like the limb, was working under conditions in which the flow of blood was impeded. Burns made no mention of pain induced in the limb, and it was probable that he almost entirely followed Parry in his view of the disease. Benjamin Brodie, in 1846, referred to cases of arterial disease in the leg with gangrene of the toes, and compared them with angina, but he, too, made no mention of pain. It was left to Potter, in 1866, to draw a comparison between intermittent claudication in a limb and the pain of angina pectoris.

ARTERIAL OCCLUSION

Sir Thomas Lewis then went on to say that experiments had been made to decide where the pain arose in a limb in which the arterial flow had been temporarily occluded. The view had been held by Zach and others that it originated in the arteries, and was due to spasmodic contraction of their walls. He and his colleagues had set this explanation on one side because they had found that if the blood supply to the forearm was occluded and the muscles then exercised until the pain became severe, the removal of the ligature gave rise to an immediate flushing of the muscles, synchronous with the first pulse beat; the pain, however, persisted for some seconds after the removal of the ligature. Potter, in his study of intermittent claudication, had evidence of the condition as found in horses. Charcot observed a patient who developed cramp-like pain on walking, and ascribed the pain to cramp comparable to cadaveric rigidity. The conception of the pain as due to cramp, however, was not correct, since the pain could be induced easily by exercising a ligatured limb, cramp being rare. The subject might complain of cramp-like pain, but no increase in the tone of the muscles could be observed.

The method used by the lecturer and his co-workers for engendering the pain was simple. A small instrument with a spring registering the strength of the movement was taken in the hand and gripped at intervals of one second, as recorded by a metronome, the circulation being cut off by means of a sphygmomanometer. The pain arose quite regularly at the end of thirty to thirty-five seconds; it grew steadily in intensity until, after from seventy-two to seventy-eight seconds, it became so intolerable that the subject stopped. There was no question of one person stopping at fifty seconds and another at ninety; the time was in the region of seventy-two to seventy-eight seconds for different subjects and for the same subject on different days. It was possible, therefore, to make experiments with a basis of uniformity.

The character of the pain was difficult to describe. It could be said to be diffuse, and even aching. It was situated in the neighbourhood of the acting muscles, and could be produced in any group by bringing them into play. Moreover, the muscles became tender, and this tenderness persisted after the pain had disappeared.

MUSCULAR ANOXAEMIA

Another theory of the causation of the pain attributed it to lack of oxygen in the muscle. The unsoundness of this idea could be demonstrated by two simple experiments. In the first place, if the circulation to a limb was stopped but the limb kept at rest, no pain would develop, even when the limb became anaesthetic after twenty or thirty minutes. Secondly, if in a limb in which the circulation was occluded the subject worked his muscles until he knew that he was within two or three contractions of the development of pain and then stopped, no pain would develop; the muscles had been working vigorously and would still be using up oxygen after they were at rest, and yet the pain did not appear.

On the other hand, it would be observed that whether the load on the muscle was increased or the rate of the contractions augmented, both the onset of pain and the point at which it became intolerable would be expedited. Therefore the onset was determined by the amount of energy expended by the muscle. Sir Thomas said that he and his colleagues had found that certain simple observations had given them the clue to the origin of the pain. If the circulation was cut off and the limb worked until the pain reached a certain intensity, either mild or severe, and then allowed to rest, as long as the ligatures remained in place the pain would persist at the same degree of intensity, without any signs of abating. As soon as the ligature was released the pain disappeared in from two to four seconds. He believed, therefore, that the cause of the pain was chemical or physico-chemical in origin. The theory they had reached was that changes occurred in the muscle as a result of muscular work, and that these gave rise to a change in conditions in the tissue spaces, outside the muscle fibres, and that this change was responsible for the pain. Their reason for considering that changes in the tissue spaces, and not in the muscle fibres themselves, produced the pain depended on another series of experiments.

ALTERATIONS IN THE TISSUE SPACES

When the ligature was released the pain went almost in a flash, but if as soon as it had disappeared the ligature was restored and exercise resumed, the onset of the pain was earlier than usual, and the shorter the period of rest the more quickly it arose. Actually the muscle did not

recover completely for at least ten minutes after the removal of the ligature, and it might be assumed that the process engendered in the muscle fibres required a longer period to subside than the process in the tissue spaces. Again, if exercise was begun before the ligature was applied and then carried on after the circulation had been occluded, the pain developed more quickly than usual. There could have been no heaping up of the factor responsible for pain in the tissue spaces before the application of the ligature, but there must have been an accumulation in the muscle fibres of the factor produced there by exercise.

If, with the circulation occluded, exercise was performed until pain arose, and if the ligature was then released but the exercise continued until the pain disappeared, the re-application of the ligature and the simultaneous cessation of exercise would result in the return of pain in twenty to thirty seconds. Some change in the condition of the muscle must therefore be ultimately responsible for the pain. *Pari passu* with the process developing in the muscles of an exercised limb in which the circulation was occluded, there occurred the collection in the tissue spaces of the factor responsible for pain. If the circulation was not occluded the tissue spaces would be kept free of this physico-chemical factor, whatever it might be, and pain would not arise. In passing to a consideration of pain in angina pectoris it might be said that, if this was due to ischaemia, pain ought to arise either when the work of the muscle remained constant and the blood supply was decreased, or when the work of the muscle was increased and the blood supply failed to keep pace. In coronary thrombosis, although there was no increase in the work of the heart, the vessels were failing to supply the usual quantity of blood. There were certain similarities and differences between the pain due to coronary occlusion and the pain of angina pectoris ; in both the pain was severe and continuous and not spasmodic, like, for example, bowel pain. It was often intense, and the situation was the same in both: the pain was felt over the upper and lower sternal regions and over the precordium, and the spread was the same in both cases. The two conditions differed in the predominance of epigastric pain in coronary thrombosis, and the greater length of the period during which the pain was felt.

MUSCULAR ISCHAEMIA

Coronary thrombosis offered the best possible evidence that pain actually did arise from coronary occlusion. Sutton had experimented by placing a ligature round the coronary arteries of dogs, under general anaesthesia. On the recovery of consciousness, traction on the ligatures produced immediate and definite symptoms of pain in the dogs ; the clinical evidence, however, should take precedence of this, since a ligature round an artery was bound to affect surrounding structures. Sutton was unable to produce pain by experiments on other structures in the neighbourhood of the coronary arteries, and on this point his observations went further than clinical evidence.

If coronary thrombosis was thought of in terms of muscular ischaemia, it could be assumed that the affected vessel was closed and that the muscle supplied by that vessel, continuing to work, heaped up the pain-producing factor in the tissue spaces ; the pain began mildly and grew more intense, but the heart muscle, unlike the muscle of a limb, was driven inevitably to continue its contractions. For this reason the pain of coronary thrombosis must persist for a long time.

Parry's theory of pain in angina pectoris postulated an increase of strain in a sore or irritable aorta ; if this were the case a rise of blood pressure alone should be sufficient to initiate an attack. But it had been observed in certain cases of paroxysmal tachycardia, in which there was no rise of blood pressure, that attacks of anginal pain might occur during the paroxysm ; in these cases there could be no question of strain on the aorta. One observer of attacks of angina pectoris occurring in himself recorded that when he was in company he had often been able to conceal the pain and to go on moving during the attack until the pain stopped. Was the pressure diminished in these circumstances, or did the arteries accommodate themselves to the attack? Far more observations on the blood pressure during attacks required to be made before a definite statement could be offered.

In the angina of effort it must not be assumed that the pain was due to a rise of blood pressure unless this could be verified. Muscular ischaemia supplied an adequate explanation of this type of angina pectoris, as of other types. In angina pectoris occurring in males with grave heart disease, usually aortic regurgitation, the attacks were associated in the early stages with effort, but in the later stages they occurred while the patient was in bed, usually in the small hours of the morning. The attacks were associated with throbbing in the chest, head, and neck, and the rise in blood pressure and pulse rate was conspicuous ; amyl nitrite was particularly effective in relieving these patients. But the blood pressure was not the only factor in producing pain, as could be shown by quoting the case of a man in whom the attacks developed following food.

At a time when his systolic pressure was 142 and his pulse rate was 77 he was given a piece of toast. By the time he had finished it his blood pressure was 152 and his pulse 112. Within a few moments an attack began, his blood pressure being 172 and his pulse rate 116. On another day the same man was made to perform exercise standing up ; his blood pressure rose from 167 to 205, and his pulse rate from 78 to 108, but no pain developed. The experiments were repeated on another day with the same results ; food produced pain, and exercise had no such effect. The blood pressure at the end of the attack initiated by food was 179, and the pulse rate 108.

AMYL NITRITE AND BLOOD PRESSURE

The general belief was that amyl nitrite relieved an attack of angina pectoris by lowering the blood pressure and decreasing the work of the heart ; this was the view of Brunton, who introduced it. Few observations of the action of the drug on the blood pressure during an attack had been made to confirm this theory, and Sir Thomas Lewis's own continuous observations in the ward had shown it not to be the full story. In one case the blood pressure was 200 and the pulse rate 144 during an attack ; one minute later, after an inhalation of amyl nitrite, the pain was gone, the blood pressure was 212, and the pulse rate 132. Other cases in his series had shown comparable results ; in all of them the differences in the blood pressure were very small, and where a fall occurred it was not great enough to bear out the theory that amyl nitrite acted by reducing the blood pressure. It seemed far more likely that it acted by causing a dilatation of the coronary vessels. In coronary thrombosis inhalation of amyl nitrite gave no relief because it could not open up the blocked vessel, but in those cases where it relieved the pain experience showed that it did not have any marked effect upon the blood pressure. Inhalation was followed only by a transient flushing of the skin, and yet an attack might be warded off by its use. The likelihood was that it dilated the coronary arteries, and the increased supply of blood swept out the pain-producing factor from the tissue spaces.

In conclusion, Sir Thomas Lewis said that he had attempted in this lecture to outline the main facts in support of the view that ischaemia of the muscle was the cause of anginal pain.

British Medical Journal

SATURDAY, MAY 30th, 1931

ETIOLOGY OF DISSEMINATED SCLEROSIS

Early last year Miss Kathleen Chevassut,[1] working at the Westminster Hospital, reported the recovery from the spinal fluid in cases of disseminated sclerosis of an organism or virus, which was only discernible by Barnard's ultra-microscopical technique. She named it *Spherula insularis*, and credited it with etiological significance. She emphasized the importance of inoculating culture tubes with the fluid immediately after its withdrawal, and described certain subsequent changes in the *p*H of the media employed, which, if other causes such as ferments or enzymes could be excluded, might support the view that a living entity was present. Sir James Purves-Stewart,[2] using a vaccine prepared from these cultures for intravenous injections, obtained promising clinical results, although it was admitted that in disseminated sclerosis, with its frequent remissions and subsequent exacerbations, caution was necessary in interpreting such clinical results as being due to the vaccine treatment. Confirmatory pathological discoveries were recorded later by Smith and Ransome.[3]

Commenting on Miss Chevassut's claims (*British Medical Journal*, June 14th, 1930, p. 1102) we indicated the necessity for repetition of the whole procedure under identical conditions by other workers, and expressed the hope that, in any event, her report would stimulate renewal of interest in the various problems of disseminated sclerosis, in this country and abroad. Two repetitions have been subsequently recorded. On January 8th of this year Dr. E. A. Carmichael[4] read a paper before the Section of Neurology of the Royal Society of Medicine, in which he gave details of an attempt to recover the *Spherula insularis*. He examined nineteen cases of disseminated sclerosis, but was unable to detect the spherules in the cerebro-spinal fluid in a single instance. He did not find the alteration in the medium employed for cultivation, but in the subsequent discussion doubt was expressed as to whether his technique was strictly comparable with that of Miss Chevassut. The latter point, alteration in the *p*H, is admittedly of secondary importance, since Miss Chevassut did not claim that this change was at present to be considered a proof of the existence of the *Spherula* as a living organism, but it has, undoubtedly, a bearing on the evaluation of the evidence as a whole.

In Paris, meanwhile, a parallel investigation was in progress, and Drs. Pierre Lépine and P. Mollaret[5] reported at a meeting of the Academy of Medicine on March 24th, 1931, that they had been quite unable to assure themselves that a specific virus had been discovered. In spite of taking the most rigid care to repeat exactly the work of Miss Chevassut they could not detect any difference between the cerebro-spinal fluids of patients suffering from disseminated sclerosis and those of other persons. They found in their controls the spherules and granules described by her, often in large numbers, but they never obtained, by cultivating them on similar media, the large colonies she had reported. The existence of filterable contaminants is admitted, and these two French workers are inclined to think that the bodies are of this derivation, and are not specific to disseminated sclerosis. Furthermore, they claim to have produced similar appearances by injecting a drop of human serum into the aqueous humour of the eye of a rabbit, and withdrawing and examining the fluid after twenty-four hours ; they insist that the spherules then present were indistinguishable from those described by Miss Chevassut. They conclude that these bodies represent the results of flocculation of certain elements of human serum in special chemico-physical conditions, and have no definite pathological significance. Drs. Lépine and Mollaret investigated with equal care the changes in the *p*H of the media employed for cultivation, and report only a slight alkalinization attributable to the loss of carbon dioxide ; they were unable to detect any evidence of the presence of a living and growing organism. On the other hand, they admit that " vaccines " have been prepared by them on the lines suggested by Miss Chevassut, and that they cannot so far exclude the possibility that there is some therapeutic benefit following the injection of such vaccines into patients as a form of non-specific protein therapy. They are therefore continuing to treat patients on these lines, and will report the clinical results when sufficient time has elapsed to make it clear whether or not the benefit is persistent and attributable to the vaccine. They are at present inclined strongly to the view that the *Spherula insularis* is a physical phenomenon only, brought about by the presence of human serum in the culture media into which the cerebro-spinal fluid was inoculated.

BOVINE TUBERCULOSIS IN MAN

The Ministry of Health has just issued a short pamphlet[6] designed to enable the general public to appreciate the significance of bovine tuberculosis to the community, and to understand the practical and scientific difficulties involved in its control both in man and in animals. It is now definitely accepted that man may suffer from tuberculosis originating from

[1] *Lancet*, 1930, i, 552.
[2] Ibid., 1930, i, 560.
[3] Ibid., 1930, ii, 901.
[4] *British Medical Journal*, 1931, i, 98 ; and *Proc. Roy. Soc. Med.*, xxiv, 591.
[5] *Bulletin de l'Académie de Médecine*, 1931, Serie 3, cv, 512.
[6] Reports on Public Health and Medical Subjects. No. 63. A Memorandum on Bovine Tuberculosis in Man, with Special Reference to Infection by Milk. Ministry of Health. London: H.M. Stationery Office. 1931. (6d. net.)

animals, the disease in each case being essentially the same in its general nature, though sometimes differing in degree. Children are particularly subject to infection with the bovine bacillus, and there is no doubt that a considerable amount of tuberculosis in childhood is caused by the drinking of milk from tuberculous cows. Assuming that the races of tubercle bacilli do not become modified by passage through man, and that the discovery of bacilli of the human or bovine type in any case of tuberculosis gives an accurate indication of the origin of the infection, it would seem that a large proportion of tuberculosis in children under 15 years of age—in some cases up to half—is caused by bacilli from cattle, with an annual death roll of about 1,000 in England and Wales. There is little or no evidence that pulmonary tuberculosis in children is caused by milk.

The disease is common in cattle, and while it is difficult to make an accurate estimate, there is reason to believe that it is not less than 40 per cent. Cows suffering from tubercular mastitis are the most important from the public health point of view, and between 0.3 and 6 per cent. appear to be so affected, with between 1 and 2 per cent. yielding tuberculous milk. There is no evidence to show whether the incidence of the disease in bovines is increasing or decreasing, though undoubtedly non-pulmonary human tuberculosis is definitely on the down grade. Complete eradication of all animals which react to the tuberculin test is impracticable in Britain, partly because of expense and dislocation of milk supply, and partly because it is doubtful whether the eradication would be permanent. At present we destroy all animals in an advanced state of the disease, but, even if this were completely carried out, it could not seriously affect the position either in man or in animals. Bang's method of building up tubercle-free herds by the segregation of calves at birth is somewhat costly, but is worthy of more extensive trial in this country than it has yet received. Preventive vaccination with B.C.G. vaccine has given promising results in calves, and there is evidence that a certain degree of immunity can be produced in these animals; but its protective value for children has yet to be established.

In Scotland the routine clinical examination of milk herds at frequent intervals by competent veterinarians, and the exclusion of diseased animals, has given most encouraging results. This method is being rapidly extended there, although it has only been tried to a small extent further south. Milk tests, both biological and microscopical, can give valuable assistance to this scheme; and the grading of milk, with its necessary good dairy hygiene, should constitute an important element in any comprehensive scheme for the improvement of the milk supply. Meanwhile, under careful methods of operation and scientific control, pasteurization can ensure a milk supply which is not only perfectly safe for consumption, but which retains its food value practically unimpaired by the heat to which it is subjected.

PATHOLOGICAL FUNCTION OF THE KIDNEYS IN RENAL DISEASE

Whatever may be said of the detailed accuracy of Cushny's theory of the secretion of urine there can be no doubt that it has acted as a fruitful stimulus to physiological investigations. When the facts of renal pathology are reviewed in the light of this theory some minor modifications seem to be necessary, such as those suggested by C. Holten and P. B. Rehberg,[1] who admit that there occurs in the glomeruli a filtration of fluid of the same composition as the plasma, but without the colloids. This filtrate is concentrated in the tubules by an active reabsorption of water, and by the back diffusion of the non-threshold substances controlled by the permeability of the cells of the tubules for the substance in question. These authors point out that creatinin is concentrated by the kidneys to a much greater extent than any other substance, and the diffusion back of creatinin through the tubules is practically *nil*. The amount of filtrate per unit of time can be calculated from a simultaneous determination of the creatinin concentration in plasma and urine, provided that the amount of urine per unit of time is known. For this reason the measurements of creatinin in the urine and plasma are likely to prove the most accurate means of determining renal function. We have in the Volhard-Strauss test of renal function a very useful indication of the activity of the kidney, particularly of the function of the tubules in the absorption of water. In this test the volume and specific gravity of the urine are determined in four consecutive hours after taking 1,000 c.cm. of water. The usual result is that most of it is excreted in the course of the four hours, and that the specific gravity falls to 1001–1004. In conjunction with this a concentration test is done in which, by putting the patient on a dry diet, the kidneys are induced to concentrate the urine as much as possible—normally to a specific gravity between 1025 and 1030. In this test the maximum concentration affords the best criterion of the reabsorption of water in the tubules, and therefore of one of the chief functions of the tubules. It is interesting to consider the principal symptoms of Bright's disease in the light of this modification of Cushny's filtration theory. With regard to albuminuria, it is well known that the greater part of the protein excreted in the urine is serum albumin, excreted because of an abnormal permeability of the glomeruli. The loss of albumin in albuminuria is of prime importance in the production of oedema because of the altered physical condition of the plasma. Polyuria can be explained as the result of diminished water absorption in the tubules. The authors pay particular attention to chronic uraemia, the symptoms of which are certainly due to the retention of nitrogenous bodies. In severe cases of uraemia it is possible to improve the symptoms by restricting the nitrogen metabolism without, however, effecting any real improvement in the renal function. The nature of the nitrogenous substance which causes the toxic symptoms is unknown. Urea and creatinin appear to be quite atoxic when by administering them their concentrations in the blood are brought to the same height as, or above, those found in severe uraemia. There is no doubt that genuine uraemic symptoms occur with

[1] *Acta Medica Scandinavica*, 1931, vol. lxxiv, Fasc. 5.

different degrees of azotaemia in different individuals. The acidosis and low calcium content of the blood in true uraemia are probably secondary factors. From their studies of restricted protein diet and uraemic symptoms Holten and Rehberg deduce that uraemic symptoms disappear quickly when the glomerular filtration is fairly well maintained, and slowly when it is small, and that they persist when it is greatly decreased. The blood urea can be influenced by diet most when the glomerular filtration is fairly well maintained, and least when it is bad.

NOMENCLATURE OF PYORRHOEA

At the International Dental Congress, to be held in Paris next August, a special sectional discussion will take place on the nomenclature of pyorrhoea, and it seems likely that the British and the Continental view will be sharply contrasted. At a meeting of the Section of Odontology of the Royal Society of Medicine, held at the Royal College of Surgeons on Monday, May 18th, Dr. E. W. Fish, who acts as secretary of the Section for foreign correspondence, stated that an attempt has lately been made in Holland to frame a better nomenclature for the group of diseases called pyorrhoea than that which at present obtains. The trouble with this group of diseases, said Dr. Fish, was that every worker in this particular domain almost always devised new names to suit his own views of the etiology of the condition, and it was felt by a number of Dutch workers, who were trying to divide the disease up into the various clinical manifestations, that it was first of all necessary to arrive at some nomenclature free from any reference to the etiology of the disease and merely to describe the conditions seen in the mouth. With that object in view a committee in Holland set to work, and had endeavoured to devise names which would be acceptable internationally. The suggestions so far made—which were quite tentative—were that pyorrhoea should be divided into three groups—namely, gingivitis marginalis suppurativa, peridentosis, and alveolar atrophy. The first group would consist obviously of a superficial inflammation of the gum margins indicated by the reddened edge of the gum. Peridentosis was taken to include diseases in which there was loss of tissue around the teeth. It was proposed to subdivide this group into three classes—namely, peridentosis profunda, really the later stage of gingivitis, in which there were pockets and pus; peridentosis dystrophia diffusa, in which there was an irregular loss of bone, with loosening of teeth; and, finally, peridentosis dystrophia complicata, in which there were pockets, pus, and wandering or loosening of teeth. The third category, alveolar atrophy, included the conditions in which the loss of tissue was definitely associated with age (many workers would not regard these as diseases at all) and might be subdivided into atrophia praecox and atrophia senilis. Mr. F. N. Doubleday hoped that in this country no such classification would be accepted. It might fairly be observed, he said, that a somewhat similar classification had come from Vienna, and from Toronto and New York. The objection to these classifications was that they were based on the Continental conception of pathology—that is to say, on certain morbid appearances, and not on the pathological conception as it was understood in this country. Pyorrhoea might be divided simply into two groups: that which was due to some local cause, which was under control and would yield to surgical treatment; and that which was due to constitutional causes and must be correspondingly treated. Mr. Doubleday added that a great deal of pathological work had been done in the Section of Odontology, particularly by Sir Frank Colyer, on the infective organism, and he hoped that the British delegates at Paris would not agree with the proposed Continental nomenclature.

THE ROYAL SOCIETY CONVERSAZIONE

Standing behind the mace presented to the Royal Society by King Charles II in 1663, the president, Sir Frederick Gowland Hopkins, received guests at the conversazione held at Burlington House on the evening of May 20th. If Samuel Pepys, Esq., F.R.S., had been one of the guests he would, one feels sure, have been "full of admiration, all admiration," as was the Duchess of Newcastle, who, "after much debate pro and con," attended a meeting of the Royal Society on May 30th, 1667, and was shown "several fine experiments . . . of colours, loadstones, microscopes, and of liquors; among others, of one that did while she was there turn a piece of roasted mutton into pure blood, which was very rare." Pepys would have seen all these experiments except the last one, which is still very rare. With so many exhibits of such divergent interest as "the somatic induction of polypoids" and "the application of the methods of *x*-ray crystal analysis to industrial problems," the visitor felt an urgent need for the Dioptrical Paradox (Exhibit No. 17) which will "refract to the eye the various parts as one entire figure to be represented." Perhaps that which, as much as anything else, distinguished this meeting from those held in the seventeenth century was the part taken by industry in the demonstration of experiments on loadstones and liquors. The projection of films showing the application of substandard cinematograph apparatus to the study of crystal growth was one of the exhibits of Imperial Chemical Industries, Ltd.; fused quartz mirrors were shown by the Thermal Syndicate, Ltd.; and Messrs. Vickers-Armstrong, Ltd., had on view a new model projection microscope which will take heavy objects up to 50 lb. in weight, which is immune from vibration, and which can be used for the examination of transparent or opaque specimens at magnifications of from three to five thousand diameters. That the cell in the developing embryo is predestined to one organic fate, and one only, would seem to be disproved by the work of Mr. C. H. Waddington from the Strangeways Research Laboratory, Cambridge. A series of beautiful microscopical specimens showed that in avian embryos a developing primitive streak can induce a neural plate in ectoderm which does not normally form such a structure; and, furthermore, that the primitive streak itself can be regenerated even after it has been removed. Another very interesting exhibit from the same laboratory demonstrated that exposure of tissue cultures to lethal doses of gamma rays produced the same result, given either in one continuous irradiation of six hours or in hourly fractions on six successive days; the action is cumulative. But if a shorter irradiation, merely hindering cell division, is given, the action is not cumulative, and its effect varies with the length of the interval between the irradiations. The interest shown

by the guests in casts of the skull of the Peking man, and in the fossil remains of the Taungs ape, testified to the fascination of the anthropological jigsaw puzzles which are adduced as evidence of man's origin. Professor G. Elliot Smith, in a note on the cast of the Peking man, prepared by Professor Davidson Black, pointed out that the absence of a projecting mastoid and the unusual form of the robust tympanum more closely resembled the simian condition than any known human skull, while the articulation of the lower jaw approximated to the formation regarded hitherto as distinctive of *homo sapiens*. The two outstanding features of the evening, however, were the cinematograph films of virus diseases of plants and of a new process of colour photography on non-inflammable film. The first showed the changes taking place in the cell of the plant *Solanum nodiflorum* after infection with a virus. With a magnification of twenty thousand, and at a speed of twelve times the natural rate, the protoplasm was seen to move round the confines of the cell and along the strands intersecting the body of the cell, while the nucleus was jostled along by this never-ceasing cytoplasmic stream. The first effect of the virus was an acceleration of the movements of the cell contents. Then, passively carried about the cell by the moving cytoplasm, numerous small protein particles appeared, which tended to congregate in the neighbourhood of the nucleus. In the end they coalesced to form a single rounded mass, or inclusion body, usually closely adjoining the nucleus. In one cell an inclusion body was shown to be separate from the nucleus. Dr. W. B. Brierley, who was demonstrating the film for Dr. F. M. L. Sheffield, emphasized that the inclusion body was non-motile, was not a living entity, and was an aggregate of particles giving a protein reaction. After a time this body tends to break down into a number of protein crystals. It is impossible to do justice in a short space to the work of Mr. S. R. Wycherley and Mr. T. Thorne Baker, members of the technical staff of Messrs. Spicer, Ltd. In their new process, coloured objects are photographed in an emulsion coated over a matrix consisting of some half-million red, green, and blue-violet squares to the square inch on non-inflammable film. The advance on previous colour photography was well shown in a series of interesting cinematograph films of Piccadilly Circus, of the French Riviera, of the Royal Botanical Gardens, of the gardens of the Zoological Society, and, to the delight of the audience, of Sir Frederick Hopkins at work in his laboratory. In the "close-ups" of flowers one saw excellent examples of the delicate gradations of colours obtained by this process; the only difficulty that remains to be overcome is the diffusion of blue in open scenes. And so to bed after having enjoyed, with the shade of Pepys, "a great meeting of worthy noble persons."

PLAGUE IN ECUADOR

Plague was introduced into the West Coast of South America in 1903, when a vessel from India brought it to Peru. About five years later it was carried to Ecuador. Since then nearly 8,000 cases have been officially reported from the port of Guayaquil, latterly becoming stabilized at about 110 cases yearly. When the disease first got a footing there were about 300 cases yearly, and the gradual decline, as shown by a recent report of the United States Public Health Service,[1] is probably due to a reduction in rodent plague consequent upon an increasing immunity of rats to the infection. The disease has of course spread from the port to inland towns and villages, but it is believed that the extermination of plague in Guayaquil will mean its extermination throughout the country. Pneumonic plague is rare, and septicaemic plague is not common. The usual form is bubonic plague, as in most other countries, but axillary buboes are very frequent. In addition, especially in the mountain districts, a tonsillar form (angina pestosa), and a vesicular form (viruela pestosa), resembling chicken-pox and small-pox, are often encountered. The first of these special varieties is probably due to the habit of the Indians of killing vermin with their teeth; it is unknown why the second atypical form occurs. The important form, however, is the ordinary bubonic plague, which has a relatively low mortality—about 36 per cent. The main cause of the condition is the tropical rat flea (*Xenopsylla cheopis*) in the areas where rats comprise the important reservoir. But it is believed that *Pulex irritans* is the main cause in the mountain regions, and is probably instrumental in carrying it from man to man; it is probably the main cause of the two atypical forms. The plague reservoirs, in Ecuador as elsewhere, are rodents, and although guinea-pigs are extensively kept in houses, the important rodent is *Rattus norvegicus*. Few towns are more suitable for the establishment of rat colonies than Guayaquil. There are a very few concrete buildings more or less rat-proof; a considerable number of cheap bamboo shacks which from the poorness of their construction offer little rat harbourage; and many blocks of wooden buildings which offer almost ideal conditions for rats. Those occupied by the poorer classes are overcrowded to an unbelievable extent with human beings and with guinea-pigs. Hygiene is poor; and, to add to the complications, the elaborate death ceremonies of the Indians keep relatives, from long distances, in close contact with the body for several days—often lying on the floor in a drunken stupor most of the time. Finance made it impracticable to insist on rat-proof buildings, but towards the end of 1929 a small Government grant was provided for antiplague measures. This was expended in trapping and poisoning rats. The use of poison has been in practice in many places before; but this method has seldom been employed with the intensity adopted in the past few months in Guayaquil. The poison—arsenic or barium carbonate with a suitable bait—is made up in small paper packages by boys and sprayed with oil of anise before being stored in barrels for subsequent distribution throughout the town. The best bait was found to be dried fish, corn meal, and arsenic. Barium carbonate is slightly less effective as a poison, and more has to be used in a package (35 per cent., against 18 per cent. of arsenic), but it has advantages when poisons are first being introduced, because of its lesser toxicity to the general population. No accidents have occurred in the town during the campaign, except the death of some ten cats, which had been attracted by the fish baits. The

[1] U.S. Treasury Department. Public Health Service. *Chief Etiological Factors of Plague in Ecuador and the Anti-Plague Campaign*. By C. R. Eskey. Reprint No. 1409 from the Public Health Reports. Washington: Government Printing Office. 1930. 15 cents. (For sale by the Superintendent of Documents, Washington, D.C.)

oil of anise used seems to have an attraction for rats, but not for other animals. The results of the use of poison show that it is an inexpensive, safe, simple, and effective procedure to employ in any antiplague campaign. So successful has it been that it is anticipated that, without any other measures whatever, if the poison campaign is continued with the same activity as during the past seven months, plague will be eradicated from Ecuador within a year.

MEDICAL PROBLEMS OF CLIMATE AND AIR TRAVEL

In a previous note in these columns (December 20th, 1930, p. 1055) on medical research at the Eppendorf General Hospital in Hamburg mention was made of the special "pneumatic rooms," where the air pressure could be varied within wide limits. The suitability of these pressure chambers for investigation of many outstanding physiological and medical problems has led to the founding of a special research institute concerned with problems relating to air travel and climatic conditions. In conjunction with other research departments in Hamburg it is proposed to investigate at various "heights" (that is, at various degrees of atmospheric pressure) the general efficiency of air pilots and air travellers at rest, at work, after training, and after periods of recuperation. Observations will be made on the functional efficiency of the heart, lungs, kidneys, special senses, nervous system, etc., under these conditions. Ergometry and balance experiments, measurement of metabolism of the power of concentration and latent period, will also be carried out under different degrees of reduced atmospheric pressure. Particular attention will also be paid to the medical aspects of air-, sea-, and mountain-sickness. The optimum efficiency of human beings under varying atmospheric states will be investigated, in association with the meteorological institute in Hamburg and the light research institute at the Eppendorf Hospital. The influence, on several groups of subjects, of atmospheric pressure, degree of humidity, water-vapour tension, temperature, radiation from the sun, wind, and electrical charge, will be observed. The physiological behaviour of healthy persons both at rest and at work, and of patients suffering from various diseases under the conditions outlined above, will be studied. By means of the climatic conditions artificially produced in the pressure rooms, methods will be devised for testing the suitability of tuberculous patients, for example, for treatment at high altitudes. Sudden climatic variations, and the importance of acclimatization on the physiological state of subjects at work and at rest, will also come under consideration; while the investigation and treatment of caisson disease and bronchial asthma, for example, by high pressure, will also be carried out. In conjunction with other departments of the Eppendorf Hospital it is also proposed to conduct, at very low pressure, a series of animal experiments bearing upon the question of stratosphere flying, now much before the public eye in Germany. Problems connected with anoxaemia, acapnia, greatly reduced temperature, and artificial respiration apparatus for the administration of oxygen are particularly those with which modern air travel is concerned, as well as with those more special problems of the effect of high altitude and high speed on balancing power and sense of position. It is hoped that the new institute in Hamburg will eventually be able to throw some light on these comparatively unknown regions of human physiology.

DR. BARNARDO

A valuable record of the life of a great man who was a member of the medical profession will be found in a book entitled, *Dr. Barnardo: Physician, Pioneer, Prophet*,[1] by Dr. J. Wesley Bready. It is a refreshing volume, interesting throughout, and even fascinating in that portion of it which tells of Barnardo's discoveries of the homeless boy population of London and of his early efforts to make their existence known to others, and to deal with the appalling situation. The subtitle of the book, "Child Life Yesterday and To-day," is appropriate, for the work and achievement of Dr. Barnardo lay not only in the establishment of an organization and institution which is one of the great monuments of modern philanthropy, but in the change which his influence and action has very largely helped to bring about in regard to child welfare, to the custody of children, and to Poor Law homes and schools, as well as in connexion with the migration of children to the oversea Dominions. A fine tribute was paid to his work by the chairman of the Local Government Board's Departmental Committee in regard to Poor Law children when he said: "Most of the reforms that the committee has recommended Dr. Barnardo had anticipated and put into practice. We owe him much for what he has done. I think we owe him more for the example he has set us of how to do it." Not only does Dr. Bready vividly record a large number of striking episodes, but he succeeds also in presenting a complete picture of the man, stirred by evangelical faith and humanitarian pity, who shirked no danger and steadfastly met all sorts of opprobrium in the cause which he had adopted as his life-work. He was a remarkable reformer and organizer, impetuous and obstinate, autocratic and self-sacrificing, with a rare vision and an abundant human sympathy—a personality, in fact, of which any profession and any generation might be proud. To this account of Barnardo's life and work is attached an admirably characteristic portrait taken shortly before his death.

We much regret to announce the sudden death, at Whitsuntide, of Sir Herbert Waterhouse, consulting surgeon to Charing Cross Hospital and president of the Medical Defence Union. We hope to publish an obituary notice next week.

We regret to record the death of Dr. A. T. MacConkey, late bacteriologist in charge of the serum department, Lister Institute of Preventive Medicine.

The President of the Royal Society, as chairman of the General Board of the Laboratory, will receive visitors at the National Physical Laboratory, Teddington, on the afternoon of Tuesday, June 23rd.

[1] *Dr. Barnardo: Physician, Pioneer, Prophet.* By J. Wesley Bready, Ph.D.Lond., B.D.Toronto. London: J. Allen and Unwin, Ltd. 1931. (Pp. 271. 7s. 6d. net.)

NINETY-NINTH ANNUAL MEETING
of the
British Medical Association
EASTBOURNE, 1931

BEACHY HEAD

THE ninety-ninth Annual Meeting of the British Medical Association will be held at Eastbourne this summer under the presidency of Dr. W. G. Willoughby, medical officer of health for Eastbourne, who will deliver his address to the Association on the afternoon of Tuesday, July 21st. The sectional meetings for scientific and clinical work will be held, as usual, on the three following days, the morning sessions being given up to discussions and the reading of papers, and the afternoons to demonstrations. The Annual Representative Meeting, for the transaction of medico-political business, will begin on the previous Friday, July 17th. The provisional programme for the work of the fourteen Scientific Sections, together with the full list of presidents, vice-presidents, and honorary secretaries of the Sections, and the time-table of social events, was published in the *Supplement* of May 2nd. Other details of the arrangements for the Annual Meeting will appear in later issues. During the week, and in particular on the last day of the meeting (Saturday, July 25th), there will be excursions to neighbouring places of interest. We publish below, the third of a series of articles on Eastbourne and its neighbourhood, with special reference to medical institutions. The first article—"Eastbourne in History and To-day"—appeared in our issue of March 14th (p. 464), and the second—"The Hospitals of Eastbourne"— on April 11th (p. 637).

THE SURROUNDINGS OF EASTBOURNE

It is convenient for the purpose of a brief description to divide the country round Eastbourne into three sections. The first is the Downs section south-west of the main road to Lewes; the second, the region between that road and the main road to Tunbridge Wells, which is nearly due north of Eastbourne; and the third comprising the country to the east of the Tunbridge Wells Road.

THE DOWNS

The road to Lewes passes through Willingdon and Polegate, where it leaves the London Road and proceeds to Wilmington. All the way to Lewes the Downs are close at hand on the left. At Wilmington there is the famous "Long Man" cut in the turf. He holds a staff in either hand, unless, as has been suggested, the upright strokes represent doorposts. The symbolism, as well as the origin, of the figure is a matter of controversy. Here also are the remains of an ancient priory, on the right of a branch road leading to Lullington, Litlington, and Exceat. The church at Lullington claims to be the smallest in England; it is, however, but the chancel of a larger church, the rest of which has fallen into ruin. Beyond Wilmington the main road passes over the River Cuckmere (pronounced "Cook-mere"). A short distance down the river may be seen Alfriston (Alfred's or Alfric's town), whose church, the largest of the Down churches, has been called "the cathedral of the Downs." Other noteworthy features are the old Market Cross and the Star Inn. Between Alfriston and Seaford, on the coast, the road ascends a steep hill, appropriately named "High-and-Over," from the summit of which a fine view of the Cuckmere Valley can be obtained. The next village on the Lewes Road is Berwick, pronounced as spelled. (It is customary in Sussex, in the pronunciation of its place-names, to give each syllable its full value, even the suffix "ham" being pronounced quite distinctly—for example, Etching-ham, not Etchingum; a final "y," as in East Hoathly or Hellingly, is pronounced long.) Between Berwick and Selmeston a short by-road on the left leads to Alciston, where there is a footpath over the Downs to Seaford; another side road in the same direction, a few miles further on, leads to Firle, beneath Firle Beacon (700 feet). At Beddingham, where the Lewes Road bears to the right, the Downs are visible on both sides. The road crosses Glynde Reach, a tributary of the Ouse, and the railway climbs up the side of the Downs and descends to the bank of the Ouse, which is crossed shortly afterwards in Lewes itself. At their confluence, and for some distance above, both the Ouse and Glynde Reach are tidal. From this point the distance to the sea by river is about nine miles.

Lewes, the county town, is full of interest. Dominating it is the castle of Simon de Montfort, to whom was addressed the ode beginning

> Salve Simon Montis fortis,
> tocius flos militiae.

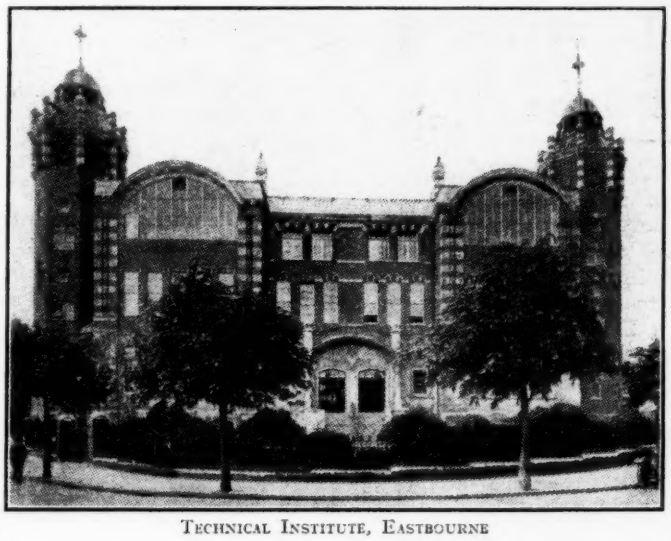
"Tocius," pronounced to scan, will appeal to those who have been chastised for false quantities, unless it is intended to be Lucretian. At the top of a hill rising steeply from the river is the county hall, containing the assize courts, then Castlegate and the Barbican, and further along High Street on the same side the official church of St. Michael-in-Lewes, which has a twisted spire similar to that at Chesterfield, though the twist is less extreme. At the top of Castlegate is a small promenade facing up the Ouse Valley. Below this viewpoint, on the right, is the brick-built church of St. John-sub-Castro. The exterior is somewhat grim and barrack-like, but still more grim are some of the headstones in the churchyard, which bear death's heads and other gruesome devices in relief.

Two roads lead from Lewes to Newhaven, one on each side of the Ouse. Both pass through picturesque villages, the eastern through Tarring Neville, the western through Southease and Piddinghoe. Each of these villages has a church with a short spire—Tarring Neville pyramidal, Southease conical, and Piddinghoe hexagonal. The mellow

lichened roofs of Tarring Neville are very pleasing to the eye. From Southease a by-road crosses the river and the railway (Lewes to Newhaven branch) to join the eastern road leading to Seaford. Newhaven, at the mouth of the Ouse, is well known to many who cross the Channel. Though Seaford has the appearance of a modern seaside resort, it is an ancient port with a history: witness the punning epitaph upon Sir N. Pelham, which concludes with the lines:

What time the French sought to have sack't Sea Foord,
This Pelham did repel 'em back aboord.

The more direct route from Eastbourne to Seaford is over the Downs, leaving Eastbourne either by Old Town and up East Dean Hill, or at the western end of the Parade and by the Duke's Drive, which also leads to Beachy Head and Birling Gap. Beachy Head is famous enough to need no description here; Birling Gap is the only place between Eastbourne and the mouth of the Cuckmere where the cliffs are low enough to give an approach to the shore. The first villages on the road are East Dean, in a valley, and Friston, on the brow of the hill above it. Both have small churches of great antiquity. At Friston a road branches to the right for Jevington (within easy walking distance of Eastbourne, over the Downs from the Victoria Drive bus terminus), Wannock, Willingdon, and Polegate. The main road continues westward to Exceat. West Dean can be seen off the road to the right, in a hollow of the Downs. Exceat is on the Cuckmere, half a mile from the mouth, which may be reached by a footpath along the further bank. The river flows out into the sea partly in an open channel and partly by percolation through the shingle. Some have suggested that the name Exceat should be spelled "Exeat," on the ground that it refers to the river mouth; but the generally accepted view is that it is a Saxon word. It is difficult to see why, if Latin, it should be in the subjunctive. The Downs rise again from the western bank of the Cuckmere, and Seaford is soon reached. Beyond Seaford and Newhaven the road continues along the cliffs through Peacehaven, Saltdean, and Roedean, to Brighton—some twenty-one miles from Eastbourne.



TECHNICAL INSTITUTE, EASTBOURNE

BETWEEN LEWES AND TUNBRIDGE WELLS

Between the Lewes Road and the Tunbridge Wells Road lies country which—until Ashdown Forest is reached—is less characteristic of Sussex, but is by no means devoid of interest. Ashdown Forest, through which the London Road passes, will be referred to later. On the western side of this region lies the valley of the Upper Ouse, here neither tidal nor navigable, except for small pleasure craft. A little to the north-east of Lewes is Ringmer, and to the south-east Glynde, joined by a picturesque and hilly road. East of these, and very close together, lie the villages of Ripe and Chalvington, occupying the centre of a flat and thinly populated area to the north of the Eastbourne-Lewes Road, and bounded on the east by the Cuckmere. On the Eastbourne side of the Cuckmere, and reached by road, either from the London Road just south of Hailsham, or from the Lewes Road by turning right at Wilmington, is "The Hide," more fully Milton or Arlington Hide, a large common dotted with gorse bushes, and forming a verge to the large and dense wood known as Abbot's Wood. The latter is well known to entomologists, who find in it a hunting ground scarcely inferior to the New Forest. The wood is private, but permits can be applied for. An idea of its extent can be most readily obtained from the top of the Downs above the Long Man of Wilmington. On the opposite side of the Hide is a road leading to Michelham Priory (whose ancient gateway is approached by means of a bridge over the Cuckmere) and the villages of Upper and Lower Dicker. Hailsham is a market town about eight miles from Eastbourne. Some two miles further is Horsebridge, a road junction with two dangerous corners; here roads lead to London, Tunbridge Wells, and Hastings. The Cuckmere is crossed between the two corners.

North of a line drawn from Lewes to Horsebridge, as far as the high ground of North Sussex, the country is gently undulating and well wooded. The only town is Uckfield; in this region the population is distributed in isolated farms and houses and in small villages, such as Chiddingly and East Hoathly. Ashdown Forest begins a few miles north of Uckfield. In olden days it was a true forest, but is now for the most part a high moor of heath and gorse studded with groups of fir and pine. There are still, however, parts of the old forest in all their density, especially near Worth. The remainder went to smelt Sussex iron before the age of coal. Crowborough, some nine miles from Uckfield, is the highest town in the county, and the journey by road to this, or indeed any, point in the forest affords magnificent views. The Tunbridge Wells Road is somewhat to the east of the main part of Ashdown Forest, but reaches high points at Mayfield, Mark Cross, and Frant. The first of these three is especially conspicuous, since it occupies the top of a hill of its own. Though much could be written about the forest and its history, its towns, and its villages, it is somewhat far afield from Eastbourne, and we have yet to notice the country east of the Tunbridge Wells Road, a region of perhaps even greater interest, since it abounds in relics of Roman, Saxon, and Norman times, and includes the actual site of the Conqueror's decisive battle.

EAST OF EASTBOURNE

Eastward from Eastbourne lie some twelve miles of level country, with the low hill of Pevensey in its midst. Pevensey was once an island; what are now marshes were covered by the sea, which in receding has left Pevensey a mile inland. Its strategic position was recognized by the Romans, and later by the Normans. Pevensey Castle, lately taken over and extensively restored by the National Trust, is a Norman castle within Roman walls. The most likely site of the Roman Anderida is here, though other conjectures have been made, including Eastbourne itself. Adjoining the Castle is the old Mint House. Not far from Pevensey, where Wartling Hill rises off the eastern edge of the levels, is Hurstmonceux Castle, which was the first brick building of consequence erected in England.

From Heathfield, a town about eighteen miles north of Eastbourne, and just off the Tunbridge Wells Road, a ridge of hills, continuous with the Ashdown Forest range, runs south-east, to terminate in the Hastings cliffs. This ridge borders the Pevensey Levels, and Wartling Hill is one of its lower slopes. Before proceeding further east we should notice the country upon and behind this ridge. Heathfield is a pleasant little town, increasing in size as its attractions become better known. To the east, Dallington stands on a hill in much the same manner as does Mayfield, already mentioned. The Cuckmere rises between Heathfield and Dallington. Brightling Beacon,

near Dallington, and at an altitude of 620 feet above sea-level, is a conspicuous landmark and an observation point for the coast from Beachy Head eastwards along Pevensey Bay. On the seaward side of the ridge are Warbleton and Penhurst, on the landward side Burwash; the hills and valleys around them are not overcrowded with traffic, and, being within easy reach of Eastbourne, make a good objective for a quiet tour. The road along the ridge next leads to Battle, which is reached more directly from Eastbourne via Pevensey, whither we will therefore return.

Continuing eastward from Pevensey, we may take either the Wartling or the Hooe Road to cross the remainder of the marshes. The latter is the more direct for Battle or for Bexhill and Hastings. On the right a by-road leads to Norman's Bay, nominally the site of the Conqueror's landing. The visitor approaching Hooe will observe a couple of oast-houses built on the hillside. These buildings are a prominent feature all over this part of Sussex, where the hop industry was extensively carried on. Hops are still grown in Sussex, but less than heretofore. The site of the famous battle of 1066, usually called the Battle of Hastings, is Senlac Hill, near the town of Battle, and about seven miles north-west of Hastings. The ancient building of Battle Abbey, which William the Conqueror founded as a thank-offering, was recently damaged by a disastrous fire. To the north-east of Battle, some seven or eight miles distant, is Bodiam Castle, one of the best-preserved fourteenth century castles in England. It stands on the north bank of the Rother, and its ancient moat is still water-filled. The castle was the property of the late Marquess Curzon, who left it to the nation. Hastings, one of the Cinque Ports, is too well known to call for description. It also has an ancient castle, on the heights to the east of the town. Beyond Hastings are Winchelsea and Rye, which both deserve a visit.

Conclusion

To attempt to do justice to Eastbourne's surroundings in such a limited compass is impossible. Sussex, with its long coast-line, its wide diversity of scenery, its venerable history, and its sunny climate, has no lack of panegyrists in prose and verse, and if this short description of a part of the county assists intending visitors in making their own explorations, it will have served its purpose.

Nova et Vetera

LEONARDO DA VINCI AS ANATOMIST

The steps which have given us Professor McMurrich's book about Leonardo da Vinci[1] are as numerous and as complicated as those involved in the production of the proverbial loaf of wheaten bread. There is first the apprenticeship of Leonardo to a painter in Florence in 1472, the apprentice being at that time 18 years of age. Then there were visits to the post-mortem room of a hospital in Florence, where the apprentice became interested in the internal structure as well as the outward form of the human body. In the third place, there was the growth of a curious habit in the apprentice of registering what he saw by means of marvellous sketches—adding to them hurried notes of his interpretation of anatomical appearances. At the time of his death at the age of 67 his folios and notebooks numbered 120; they were the material out of which he was to construct a complete account of the natural history of the human body. Death stepped in before he began his final task, and his harvest of hieroglyphs, of which he only had the key, was scattered abroad in Europe. Part of it went to Spain, and when the prince who afterwards became Charles I went wooing there in 1623, although he failed to find a bride, he did capture a large and valuable part of the Leonardo documents, which duly found their way to the Royal Library at Windsor. Others turned up in Italy and France.

The steps just narrated refer to the sowing of the Leonardo harvest; to explain those which have led to the gleaning and the production of this very solid loaf of a book it is necessary to pass to the nineteenth century, when a young Scot named Andrew Carnegie made a home and a fortune in the United States of America. Part of that fortune went to the establishment of the Carnegie Institute in Washington. In 1918 the president of the Institute invited Dr. George Sarton to write the history of science. He soon perceived that Leonardo da Vinci was one of the scientific giants of the fifteenth century, and that to assess the value of his contributions to anatomy it was necessary to call in professional assistance. He wisely went to Toronto, and enlisted the services of that distinguished anatomist Professor McMurrich, who has just sought retirement after being known to two generations of medical men by important contributions made to the embryology and anatomy of the human body. In writing this book, which represents a labour of ten years, Professor McMurrich has had at his command all known anatomical records made by the great artist. Never before have medical men had at their disposal the means of forming a just opinion of the greatness of Leonardo as an anatomist. The opinion formed by the reviewer is that, high as the author has placed him, the pedestal given is not equal to Leonardo's deserts.

It may seem ungracious, where so much is admirable, to cite a minor slip made by Professor McMurrich in one of his opening chapters. Writing about the Leonardo drawings preserved at Windsor our author states (p. 68):

> "When the rediscovery was made the book was brought to the attention of John Hunter, then the most outstanding English anatomist, and in his *Two Introductory Lectures*, published in 1784, he mentions the anatomical drawings with high appreciation. . . . A little later they were inspected by Blumenbach."

Those who are acquainted with the writings and life of John Hunter will be surprised to find him extolling the works of dead anatomists. He had very decided opinions of the value of their books. He held that their true value was to be assessed, not by what was read into them by "moderns," but by the opinion formed and appreciation expressed by the generation to which such works were addressed. In John Hunter's opinion, a discovery was valid only when it became the starting-point of a development of new knowledge; if it fell dead it did so because the discoverer did not understand what he had found. This is certainly not true of several discoveries made by Leonardo; he understood and demonstrated many things which should not have had to wait four centuries to be appreciated at their full value. Leonardo wrote in a new way, using hieroglyphical drawing as his medium of expression.

The man who recognized the great merits of Leonardo was John Hunter's elder brother William. He was certainly the greatest *human* anatomist produced by England in the eighteenth century. He also built up a great museum—a priceless collection of manuscripts, a unique collection of ancient coins—all of which are now preserved in the University of Glasgow. He was a man-midwife, the author of *The Gravid Uterus*—with its superb plates. In the course of his professional attendance on the Royal Family he had often to pass days at Windsor Castle awaiting "interesting events." It was

[1] *Leonardo da Vinci, the Anatomist (1452–1519)*. By J. Playfair McMurrich, Professor of Anatomy, University of Toronto. London: Baillière, Tindall and Cox. 1930. (Pp. xx + 265; 89 figures. 27s. net.)

during one of these visits, probably in 1782, that "Mr. Dalton, the King's Librarian, informed me of the discovery of these drawings, and at my request procured me the honor of leave to examine them. . . . In due time I hope to engrave and publish the principal of Leonardo's anatomical designs. They will be a curious and valuable acquisition to the history of Anatomy." Alas! death again stepped in, and deprived Leonardo of the anatomist more fitted than any other to be his commentator. As is well known, William Hunter gave his last course of lectures in his school in Windmill Street in 1782–83; he died soon after bringing the course to an end. In the opening lecture of his last course, which was published by his executors the year after his death, he announced the discovery of Leonardo's drawings, and gave his opinion of them in the following words:

"In tracing the great revolution in learning, which happened in the 15th century, I am enabled to carry the history of the improvement of anatomy farther back than has been done generally by our own writers, and to introduce into the annals of our art a genius of the first rate, Leonardo da Vinci, who has been overlooked because he was of another profession. *I believe he was by far the best anatomist and physiologist of his time*, the first man we know of who introduced the practice of making anatomical drawings. I saw, and indeed with astonishment, that Leonardo had been a general and a deep student. When I consider what pains he has taken on every part of the body, the superiority of his universal genius, his particular excellence in mechanics and hydraulics, and the attention with which such a man would examine and see objects he was to draw, I am fully persuaded that Leonardo was the best anatomist at that time in the world."

William Hunter was a man who weighed his words; so does Leonardo's present editor; the opinion the one came to in 1782 regarding Leonardo's merits is almost the same as the other has come to in 1930, save perhaps that the flash of insight lies with the eighteenth century anatomist rather than with his modern successor.

A survey of the documents which Professor McMurrich has placed before his readers astonishes the critic by revealing Leonardo in two quite different lights. His drawings of the articulated human spinal column are masterpieces of accuracy—notwithstanding the extra spinous process to which Professor McMurrich has drawn attention! The length, inclination, and shape of every vertebral process—spinous and transverse—are introduced with more than photographic accuracy. The man who depicted so unerringly the varying length and inclination of the transverse processes of the dorsal vertebrae had evidently fathomed the significance of the series in its relation to respiration. Yet modern textbooks leave the functional significance of the arrangement of these processes unmentioned. He approached the study of the backbone and of its musculature with no preconceptions, and drew with unerring truthfulness. But when he approached the study of the heart and great vessels he diagrammatized so as to make the parts fit with Galen's conception of the circulation. Even one of the greatest and most original minds twisted facts to suit a theory—a warning for all time.

If anyone wishes to realize how modern—nay, ultra-modern—Leonardo could be, let him look at the plate which provides Professor McMurrich with Fig. 12. A series of studies is given representing the part played by the muscles round the hip-joint in maintaining the body erect. In two drawings the muscles have been removed and their place taken by bands or cords to represent the part they play in balancing the body at the hip-joint. One drawing represents the buttock region of a horse rearing on its hind quarters, the other a profile of the left thigh and buttock of a man standing erect. Leonardo clearly realized that in assuming such postures all the muscles act from their lower attachments; the thigh provides their fixed point for action; the hip-bone moves. Yet one will search modern books in vain for his vivid representation of a truth of the utmost value to orthopaedic surgeons. He also realized that in the act of rearing a horse threw into action the same muscles as a man does who raises his body from a stooping to the erect posture.

Only a few scattered grains culled from the great wealth of this book have been placed before the reader—just enough to show the feast which awaits the real student. One might put up a claim for Leonardo as giving better guidance to the orthopaedic anatomy of the human body than has yet been given by any other master. Whether such a claim is justifiable or not, there cannot be any doubt as to the present benefit conferred by the Carnegie Institute on all students of the human body by the publication of Professor McMurrich's *Leonardo da Vinci, the Anatomist*.

A. K.

THE UNITED STATES PUBLIC HEALTH SERVICE

For the information of those desirous of entering the Regular Commissioned Corps a pamphlet has recently been issued by the United States Treasury Department dealing with the history, functions, and organization of the Public Health Service, and also regarding appointments, compensation, promotions, duties, and retirements.[1]

SUMMARY OF FUNCTIONS

The United States Public Health Service has existed since 1798, and until 1902 was known as the Marine Hospital Service. Created originally to provide medical care and treatment for sick and disabled seamen, its functions have been extended to include scientific research and measures for the protection of the public health; these include quarantine duties, the medical examination of aliens, both at home ports and in foreign countries, the study of exotic diseases, and the regulation of inter-State traffic in serums, toxins, and analogous products. In 1901 the construction of the Hygienic Laboratory was authorized for the systematic investigation of infectious and contagious diseases and matters pertaining to the public health; in 1912 authority was given for field investigations of health problems, including sanitation and sewage and the pollution of navigable rivers; in 1918 special authority was granted for the investigation and control of venereal diseases; and during the past two years the Service has been charged with studies of drug addiction and the care and rehabilitation of drug addicts, and also the broad study of mental hygiene. In 1930 laws were enacted for co-operation with other departments of the Government in public health activities, and for the establishment in Washington of the National Institute of Health, successor to the Hygienic Laboratory, for the purpose of scientific research of problems of disease in man and matters pertaining to the public health. Numerous laws have also been enacted from time to time legalizing the policy of co-operation with other Federal agencies and with State and local health authorities in their measures for the prevention of disease and the promotion of the public health, though no details are given of the extent and character of this co-operation.

Nearly 500,000 persons apply annually for medical care and treatment, mostly officers and men connected with various Government marine services, but including lepers, cases of tuberculosis, officers of the Public Health Service, prisoners at United States penal and correctional institutions, and patients at Federal narcotic farms. Hospitals and other relief stations are maintained by the Public Health Service at 155 ports of the United States and its possessions. The marine hospitals number 25, and are operated by 300 doctors and dentists, the daily

[1] Reprint No. 1414 from the Public Health Reports. United States Treasury Department, Washington, 1931. (10 cents.)

average of patients being about 4,000. The annual expenditure of the marine hospitals and other relief stations exceeds 5,000,000 dollars. All the marine hospitals are medical and surgical hospitals, except that at Carville, Louisiana, which is devoted to lepers, and that at Fort Stanton, New Mexico, which treats merchant seamen and others with tuberculosis suitable for treatment in a high altitude. New hospitals have been provided at Detroit and Cleveland, and others are being constructed or have been authorized at San Francisco (500 beds), Galveston, and New Orleans (600 beds), New York (600 beds), Baltimore, and Seattle. Several small hospitals and a field laboratory are maintained for the eradication of trachoma, and other duties include control measures for the sanitation of shellfish-bearing areas and fundamental research of public health problems in laboratories and in the field.

Organization of the Service

As regards organization, the Public Health Service is under the control of the Treasury Department, and is presided over by the Surgeon-General at Washington, whose acts are subject only to the general supervision and approval of the Secretary of the Treasury and the President of the United States. The office has eight divisions, each in charge of an assistant surgeon-general or medical director, dealing with (1) marine hospitals and relief, (2) domestic (inter-State) quarantine, (3) foreign and insular quarantine, (4) sanitary reports and statistics, (5) scientific research, (6) venereal diseases, (7) mental hygiene, (8) personnel and accounts. Candidates for the Service must pass a physical, educational, and professional examination, have certificates of good character, and their age must be between 23 and 32 years. Applicants may enter for the medical, dental, public health engineering, or pharmacy branches of the Service. Candidates in medicine who have passed the tests of the National Board of Medical Examiners are not required to pass the written professional test. On first appointment the grade entered is that of assistant surgeon (three years' service), higher grades being those of passed assistant surgeon (nine years'), surgeon (eight years'), senior surgeon (six years'), and assistant surgeon-general or medical director. The Surgeon-General is selected by the President. Public Health Officers are commissioned in grades similar to those of the Medical Corps of the United States Army. If an officer is found not to be qualified for promotion for reasons other than physical disability his commission is terminated, six months' pay and allowances in the case of assistant surgeons and one year's pay and allowances for passed assistant surgeons being granted.

Pay and Prospects

Maximum annual pay and allowances for assistant surgeons are 3,158 dollars, and, independent of promotion, all officers receive as part of their total compensation 5 per cent. of their basic pay for each three years of service, up to 50 per cent. Officers with dependants receive higher pay, the difference in the case of assistant surgeons being about 450 dollars per annum. The maximum basic pay of the surgeon-general is 9,700 dollars per annum, while senior surgeons receive approximately 7,000 dollars. Special allowances are made for travelling, and also for transport expenses on change of station. One month's annual leave of absence is allowed, which may accumulate to the amount of four months. On incapacitation by disease or accident an officer, after the expiration of his annual and sick leave, is retired and placed on permanent "waiting orders" status, and receives three-fourths of his basic pay and longevity increase, irrespective, it would seem, of length of service. On retirement for reasons other than ill-health, senior officers receive up to 60 per cent. of active duty pay.

Officers in the United States Public Health Service are apparently not required to possess any special degree or diploma in public health, and their duties embrace some of those undertaken in Great Britain by the Ministry of Health, port sanitary officers, the R.A.M.C., and, in a minor degree, by local sanitary authorities. The Service is evidently developing rapidly, though the pamphlet does not indicate its relationship to, or degree of co-ordination with, the civil health authorities.

The pamphlet concludes by pointing out that an efficient member of the Public Health Service has a pleasant and useful career, though the pay and allowances are moderate, as compared with some of those in private life. The statement is also made that "a commission in the Public Health Service is not a sinecure, on account of the lack of a fixed dwelling place, the separation at times from the family, and the conditions at times of emergency field service," and that "no officer may expect to amass great wealth through the pay of his commission, but he is assured of a comfortable living and safeguards for disability and old age." Having regard to the greater cost of living in the United States it does not appear that the conditions of service and pay in the United States Public Health Service are superior to those of officers in Great Britain who are engaged in the public services on similar duties.

England and Wales

Detection of Small-pox

The London County Council recently decided that admission of patients to the small-pox receiving station at South Wharf, Rotherhithe (where cases are collected before transport, usually by river, to the small-pox hospitals at Dartford) should be limited to cases in which a medical certificate has been given that the patient is suffering from the disease. Since then representations have been made by the Hackney, Deptford, and Islington metropolitan borough councils protesting against the decision, and pointing out that, in congested boroughs especially, it is most undesirable that a patient whose symptoms suggested small-pox should be obliged to remain at home until the rash has developed sufficiently to enable a definite diagnosis to be made. On the other hand, the London County Council drew the attention of the protesting boroughs to the diagnostic consultant service which it provided, of which some boroughs had not made full use. This service has been established for many years in order to give assistance in doubtful cases. Until about two years ago the duties were performed by a whole-time officer, and since then they have been taken over by a panel of medical superintendents of the fever hospitals. It was also pointed out by the London County Council that precautions must be taken to ensure that patients who have not contracted the disease are not exposed to the risk of such infection by being taken to the small-pox hospital or the receiving station. During 1930 the number of cases sent to South Wharf without a clear certificate of small-pox was 457, of which 94 were proved not to have the disease. In view of the representations made, however, the Central Public Health Committee proposes to modify the regulations, and to instruct that patients suspected as suffering from small-pox, but not so certified, be admitted to South Wharf for observation on the following conditions: (1) that the metropolitan borough medical officer of health has called in to the case one of the council's consultants; (2) that the patient has been examined by the medical officer and by the consultant, in addition to having been examined by the general medical practitioner (in cases in which one has been called in) and that they have all been unable to say definitely that the case is small-pox, although there is a strong presumption in the affirmative; (3) that the application for admission has been made by the borough medical officer of health; (4) that the arrangement whereby borough medical officers obtain information each evening from the Council as to the final diagnosis of cases admitted for observation continues; and (5) that the responsibility for the initiation and carrying out of all preventive action in such cases remains with the metropolitan borough councils.

Occupational Diseases in Coal Miners

In the first of two Chadwick Public Lectures on "The coal miner, his health, and occupational diseases," Professor E. L. Collis dealt with the personal factor in coal mining. He asked his audience to go with him in thought on to a coalfield, while he showed pictorially the way in which the miner worked and earned certain physical disabilities. Miners' nystagmus topped all other occupational diseases added together for which workmen's compensation was paid; it was estimated to cost the mining industry about a million pounds a year. Many more coal miners, on account of their high accident rate, as well as the tendency to certain diseases, claimed compensation every year than did other workers. After nystagmus, the next most frequent disease was beat-knee, followed by beat-hand, beat-elbow, and inflamed wrist. These maladies were due to the way in which the miner used, or rather misused, his body while at work, and they mended rapidly if the fault was corrected. They were far different from miners' nystagmus, with its all-important psychological factor; but in their treatment the aim must be complete restoration of function, so that the miner did not lose his earning capacity. Many mines were not only hot, but deep, and the miner, even though he worked stripped to the waist, perspired freely. Two results might follow: first, his skin was rendered more liable to microbic infection, and he might develop boils; or he might develop cramp if he drank plain water to assuage the thirst caused by free sweating. Miners were exposed to much dust underground, which they could not avoid breathing, so that the lungs of a coal miner became as black as the coal he worked. So long as this dust contained nothing except pure coal no damage resulted, but if rock particles were also present the lungs might be seriously impaired. Some miners only worked upon rock, in cutting roads underground so that the hewers could get to the coal; these men were seriously affected by the dust they created at their work. The dust hazard had been increased by the introduction of pneumatic drills, but a device had been invented for capturing the dust as it was generated. The most serious cause of accidents among miners was falls of roof, due largely to careless timbering of the roof while at work. The mortality rates experienced by coal miners from various diseases, and from accidents, showed interesting variations in different coalfields, and it had been observed that miners tended to be most dissatisfied with their working conditions in those coalfields where the mortality was highest.

Leicester Royal Infirmary

Leicester Royal Infirmary was founded in 1771 by the Rev. Dr. Watts, and its 160th anniversary is commemorated in the annual report for 1930 by a short account of the conditions in England in the second half of the eighteenth century. During the last thirty years three-quarters of a million pounds have been spent in changing Leicester Infirmary from a place which "provided for the needs of the sick for whom no institutional treatment or medical service was available" to a highly equipped modern hospital supported by voluntary contributions. In place of forty-two beds there are now 472. In 1921 4,282 in-patients were treated, and in 1930 the number had increased to 8,008. The ordinary income ten years ago was £51,105, last year it was £83,903. The establishment of a radium department and the installation of an electrocardiograph apparatus are two further examples of the admirable progress made along modern lines by this hospital. It is proposed to make this 160th anniversary an opportunity for a decennial appeal. One of the first works to be undertaken is the enlargement and modernization of the nurses' home.

Scotland

Post-Graduate Courses in Glasgow

The Glasgow Post-Graduate Medical Association will hold a summer session from June till October for post-graduate teaching in Glasgow. The teaching facilities will fall chiefly into two divisions: (*a*) general medical and surgical course, and (*b*) clinical assistantships. During the last two weeks of August and the first two weeks of September a whole-time course in general medical and surgical work will be conducted in the general and special hospitals; for this an inclusive fee will be charged. The mornings will be occupied with general medical and surgical diagnosis and minor surgery, in the Royal Infirmary and in the Victoria Infirmary. In the afternoons special subjects will be dealt with in some of the special hospitals of the city and in special departments of the general hospitals, two subjects being considered each afternoon. In a number of the institutions taking part in this scheme clinical assistantships are available during the summer months as well as at other times of the year; they are designed to make provision for graduates who desire opportunities for a detailed study of one or other of the specialties. Further particulars can be obtained from the secretary, Glasgow Post-Graduate Medical Association, The University, Glasgow.

Health of Dunfermline

In the annual report on the health of Dunfermline for 1930, Dr. C. Barclay Reekie, medical officer of health for the burgh, states that the infantile mortality rate of 51 per 1,000 births for the year is the most favourable on record, and that the general death rate of 11.6 has only once been lower. Although the incidence of infectious disease during the year was higher than the previous year, the number of cases of scarlet fever—namely, 112—represented a decrease of 164; among these cases there was only one death. In one instance the outbreak was traced to a dairy. Cases of diphtheria numbered 91, an increase of 11; one death was recorded. The principal cause of the increase in infectious cases was measles, of which 402 cases were notified—an increase of 277. Three patients, all under 5 years of age, died. In connexion with this disease about four hundred visits in Dunfermline were made by nurses. There were 133 cases of whooping-cough and 315 cases of chicken-pox. Nine cases of malaria were notified, all imported from abroad. Of the seven patients requiring insulin, 3 in necessitous circumstances received the treatment free. Altogether 37,300 units were issued from the public health department. Patients with pulmonary tuberculosis numbered 40; of these, 20 were given sanatorium treatment. During the year 128 patients with this disease, 109 with other forms of tuberculosis, and 20 patients under observation were visited by tuberculosis nurses. The maternity home, established by the town council in 1921 with ten beds, is urgently in need of extension, since 323 patients, whose home conditions were unsuitable, were received during the past year.

Lord High Commissioner and Hospitals

The Lord High Commissioner, Mr. James Brown, M.P., representing the King at the General Assembly of the Church of Scotland, paid the usual round of visits to the hospitals in Edinburgh in the course of the past week. On May 20th he visited the Royal Infirmary, being received by Lady Findlay, chairman of the Board of Managers, and presented the prizes gained by nurses in the recent examinations. On the same day the Lord High Commissioner's wife visited the Royal Maternity and

Simpson Memorial Hospital, which during the past year has treated the largest number of cases in its history. A visit was subsequently paid to the Children's Shelter of the Royal Scottish National Society for the Prevention of Cruelty to Children. In a short address Dr. Harry Miller said that in 1930 the society had dealt with 1,041 cases, involving the welfare of 1,507 parents and 2,978 children; 13,599 visits were paid by inspectors.

Ireland

Public Health in County Meath

In his annual report on conditions of health in County Meath, Dr. T. F. O'Higgins, county medical officer of health, states that the death rate from puerperal sepsis was higher in Meath than in any other county in the province of Leinster. This indicated the absence of skilled attendance at many births, and showed how necessary it was to apply the Notification of Births Acts to County Meath, which was not done by the Board of Health until September, 1930. Mortality from tuberculosis was exceeded only by that from heart disease and cancer, while the death rate from the principal epidemic diseases was 0.32. On the other hand, there has been a marked decline in the death of infants under 1 year, which is attributed to the work of district nurses and nursing associations. In proportion to its population, Meath appears to be better served in this department of public health than other Irish counties. Some reference is made in the report to the general system of water supply throughout the county. With the exception of the three urban districts—Trim, Navan, and Kells—and the town of Slane, where waterworks have been erected, all the towns and villages depend for their water supply on pumps or shallow wells. While pumps are stated to be kept in satisfactory order, the labour entailed in transporting the water often results in shortage and undue economy in its use, and leads to insanitary domestic conditions.

Clean Milk Society

At a recent meeting of the Irish Clean Milk Society, held in Dublin, Sir Edward Coey Bigger, in the chair, declared that if the public was assured that the milk supply was perfectly safe and free from disease, the consumption of milk would undoubtedly be greatly increased. Milk was one of the best and cheapest foods, especially for infants and children, and something had been done to improve it by the use of preservatives. In presenting the report Professor J. W. Bigger of Trinity College, chairman of the committee, said that the Irish Clean Milk Society's activities during the past year had been chiefly educational—for example, in emphasizing the dangers lurking in milk. When the society was founded there were no suppliers of tubercle-free milk in the neighbourhood of Dublin; to-day there were a considerable number who supplied absolutely safe, clean milk—a change that had been brought about largely by the society's efforts. The farmer who took the trouble to supply clean milk would find a market for it. They had failed, however, to secure legislation to improve the milk supply of the country. At present the Irish Free State was behind England, Scotland, and Northern Ireland. Scotland had about one hundred tubercle-tested herds and Northern Ireland about thirty, all under Government control. In this country there were a number of tested herds, but absolutely no Government control. The Inter-Departmental Committee, appointed in 1928, recommended that a system of graded milk should be introduced, and that there should be a penalty for selling dirty milk; yet the Government had done nothing. It was ridiculous that it was safer to sell dirty milk for drinking purposes than to send it to creameries for conversion into butter, largely for export. Even the worst milk could be described as certified in this country. Milk was as important for the health of the baby as water was for adults. In the Irish Free State several hundred babies died every year because they were fed on contaminated milk. These deaths were preventable and absolutely unnecessary. To fail to prevent death was morally the same as murder, and the responsibility rested with every Minister and member of the Dáil and Senate who obstructed in any way the introduction of legislation which tended to improve the milk supply. In proposing the adoption of the report Professor T. Gillman Moorhead, President of the Royal College of Physicians, said that the latest returns from the Public Health Department of the Saorstat showed that while pulmonary tuberculosis was declining surgical tuberculosis was not, and that it would not decline until legislation was introduced to provide clean milk. The society should continue to press for measures to prevent the disease. It was easier and cheaper to prevent infection than to spend a lot of money on cripples as the result of drinking unclean milk.

Mental Hospitals in the Irish Free State

A report presented to the Minister of Local Government and Public Health states that the number of insane persons treated in public and private mental hospitals and other institutions in the Irish Free State in 1929 was 20,050. Of these, 52.2 per cent. were males and 47.8 per cent. were females, distributed as follows: district mental hospitals, 86.7 per cent.; private mental hospitals, 5 per cent.; Poor Law institutions, 7.7 per cent.; and the State Criminal Lunatic Asylum, 0.6 per cent. The daily average number resident in all these institutions during 1929 was 17,273—9,174 males and 8,099 females—and the total number of discharges was 1,283.

Correspondence

INFARCTION OF HEART WITH PERICARDIAL EFFUSION IN A PHTHISICAL SUBJECT

SIR,—The interesting report by Lieut.-Colonel T. A. Hughes and Dr. Mohammad Yusuf (*British Medical Journal*, May 9th, p. 794) of a case diagnosed as infarction of the heart with pericardial effusion in a young phthisical subject has encouraged me to publish a similar history of a patient treated at the Mundesley Sanatorium.

A female patient, aged 36, was admitted on June 13th, 1930. Tubercle bacilli had been present in the sputum for the last eighteen months, during the greater part of which period the patient had undergone treatment in Switzerland. At the time of admission she was afebrile, and her general condition was fairly satisfactory; cough was severe, and purulent frothy sputum amounted to ten ounces in the twenty-four hours. The most remarkable feature of the case was a loud stridor, audible at a considerable distance; apart from a variable number of rhonchi, physical signs in the chest were conspicuously absent, and an antero-posterior skiagram showed heavy hilar shadows, but little else. A lateral *x*-ray picture showed a well-marked opacity in the posterior mediastinum, in which there was some suggestion of clear areas.

The condition remained stationary until August 14th, when pain in the left side of the chest was first complained of. This persisted during the next few days, but was not severe. About 8 a.m. on August 17th there was a sudden attack of agonizing pain, the patient became practically pulseless, and

the heart sounds were faint. Consciousness was not completely lost, but speech and movement were impossible. During the next few days the pain continued, with gradually diminishing severity, and frequent injections of morphine were necessary. The temperature rose to 104° F., and the pulse rate, which had been 72, to 150. An electrocardiogram taken on August 23rd by Dr. H. J. Starling showed no abnormality in any lead. With strict rest the condition gradually improved, and by August 27th an *x*-ray examination was possible; this showed the enlargement of the cardiac outline typical of pericardial effusion, and at the same time the possibility of oesophageal obstruction was excluded.

Gradual improvement continued, but the amount of sputum was unchanged, and the physical signs over the left lung were variable; sometimes loud rhonchi could be heard, and at others the breath sounds were inaudible. At the end of September a small pleural effusion appeared at the left base. The temperature remained between 100° and 101° in the evening. On October 31st a left artificial pneumothorax was induced, and was followed by considerable improvement in the general condition, cough, and sputum. At present the patient is afebrile, up most of the day, and doing short walks; the daily sputum varies between one drachm and five ounces, the stridor has disappeared, and the breathing is easier than it has been for two years. A few tubercle bacilli are still present.

The most interesting feature of this case is the occurrence of precordial pain and pericardial effusion in a patient suffering from a form of tuberculosis unusual in that it produced pressure symptoms on the main air passages to such an extent that the presence of a neoplasm was suspected. Although infarction of the heart is quite a possible diagnosis, the presence of a tuberculous focus causing pressure in the near vicinity makes it seem more probable that the sudden onset of severe symptoms was due to the discharge of tuberculous material into the pericardial sac. In this connexion it would be interesting to hear if the authors of the previous paper were able to find any evidence of disease in the neighbourhood of the pericardium.—I am, etc.,

ANDREW MORLAND, M.D., M.R.C.P.,
Resident Physician, Mundesley Sanatorium.

May 15th.

PITUITRIN AND OBSTETRIC SHOCK

SIR,—In the *Journal* of May 16th (p. 837) Professor Miles Phillips records in detail a case of collapse occurring soon after the end of the second stage of labour and culminating in sudden death within twenty-four hours, and states that, no cause for the condition being discovered, the ultimate diagnosis was death from emotional shock. May I suggest that, in this and similar cases, the possibility of death being due to an idiosyncrasy to pituitrin should not be overlooked? I had occasion, about the same year (1925), to see a case which closely resembles that described by Professor Phillips.

A primipara, aged 29, after being fully twenty-four hours in labour, delivered herself without the aid of instruments at 11.20 p.m. She had been given 3 c.cm. of pituitrin, as follows: 1 c.cm. at 5 p.m., 1 c.cm. at 8 p.m., and 1 c.cm. at 10.30 p.m. The child did not survive, despite every care, though it drew a deep breath at long intervals for nearly two hours. At 11.45 p.m. the mother's pulse was scarcely perceptible at the wrist and 120 per minute in the femoral artery. The mother felt quite well, and continued to feel well till about 1 a.m. Despite warmth and salines her pulse did not improve. The uterus was nearly as high as the umbilicus, contracted occasionally, and there was no sign of haemorrhage or rupture. The placenta lay *in utero*, and was not interfered with. The patient was not restless. From 1 a.m. she gradually sank, and died at 3 a.m. Death was, apparently with justification, attributed to pituitrin. The same preparation, I was credibly informed, had been used freely in many previous cases without ill effect.

This case very closely resembles that described by Professor Phillips. It is true that in his case 1/2 c.cm. only of pituitrin was given; but pituitrin used to vary notably in strength. In the report of the Medical Research Council in December, 1922, it was shown that commercial preparations varied so greatly that the most potent may have eighty times the strength of the least potent, and vary marked variations both in oxytocic and pressor effects occurred in extracts described by the manufacturers as physiologically standardized. Also, the question of idiosyncrasy cannot be ruled out. In the current edition of the *Medical Annual*, Professor Beckwith Whitehouse, in the article on labour and its complications, quotes A. M. Mendenhall as sounding a timely note of warning regarding the use of pituitary extract. Mendenhall states that in actual clinical practice the effects of the same dose and of the same preparation often differ widely in patients under similar conditions; and that, furthermore, once started, the effect must continue, as no satisfactory antidote to pituitary extract is at present known.—I am, etc.,

Bradford, May 22nd. PETER MCEWAN.

SPINAL ANAESTHESIA

SIR,—In thanking Mr. Basil Hughes for his appreciative letter in last week's issue, may I say that it has become my practice to reserve the 3 c.cm. dose for cases demanding increased duration of anaesthesia. I depend only on upward table-tilting to extend the anaesthesia to the higher abdomen, and use the standard 2 c.cm. dose.

May not the dose in these cases literally be a vital point? For to obtain upper abdominal anaesthesia one depends on a rising tide of spinocain round the spinal nerves. There is obviously a high-water mark beyond which the tide cannot safely rise, and it is not only the rate of flow but also the volume of the rising tide that can harm the patient. Skill in administration depends on arresting the tide at the critical moment. Therefore it is among these upper abdominal cases the fatalities of spinal anaesthesia will chiefly occur, and, other things being equal, then the smaller the dose which is adequate the less the risk, and the larger the dose used the more perfect the precision required to control it.

It was largely thanks to a conversation with Professor Burgess of Manchester that I, too, embarked on spinocain anaesthesia.—I am, etc.,

Clifton, Bristol, May 25th. A. WILFRID ADAMS.

KONDOLÉON'S OPERATION

SIR,—Mr. J. Ewart Schofield's views on the Kondoléon operation in your issue of May 9th (p. 795) should not be allowed to go unchallenged. This operation, based on the work of Sappey (1874) on the lymphatics, was brilliantly conceived. It aimed at the removal of the dense deep fascia which was obstructing the flow of lymph. That in some cases the result was not permanent was shown by A. L. Gregg to be due to re-formation of this thickened fascia.[1] From the photographs, Mr. D. J. Harries's very successful case (*British Medical Journal*, December 27th, 1930, p. 1079) was one of true elephantiasis, giving a history of tuberculous disease and infection. A survey of some ninety cases recorded in the literature as elephantiasis showed that a very large proportion proved to be only oedema from lymphatic or venous obstruction. Hutchinson's definition is "a condition resulting from solid oedema and more or less resembling the appearance

[1] A. P. Bertwistle and A. L. Gregg: *Brit. Journ. Surg.*, 1928, xvi, No. 62.

of an elephant's limb." The outstanding feature of elephantiasis is chronic inflammation. Is it not possible that Mr. Schofield's was a case of lymphatic obstruction or thrombosis of the femoral vein and the tibial venae comites? In such cases where "the deep fascia was not easily defined" the operation could hardly be expected to give relief.—I am, etc.,

London, W., May 20th. A. P. BERTWISTLE.

EXAMINATION OF MOTORISTS CHARGED WITH DRUNKENNESS

SIR,—Is it not time the British Medical Association took steps to put a stop to the farce of a medical man being called in to say whether or not an individual who is obviously drunk and incapable is in a fit state to drive a motor car? The other day, at Cambridge, a man was found lying insensible over the steering-wheel of his car, which was on the pavement, and there were no tyres on the rear wheels. The police apparently had no doubt as to what was the matter with him, but, in order to satisfy the law, two medical men had to be got out of bed between 2 and 3 a.m. to say whether or not the man was drunk!

If the law insists on requiring a doctor to state the obvious, and regards his opinion as expert evidence, which it apparently does, the fee should at least be somewhere in keeping with the nature of the services rendered. I am fortunate in having so far escaped being called to such a case, and it was only to-day that I learned—to my amazement—that the usual fee is 5s. by day and 7s. 6d. during the night. I submit that the latter is not even sufficient as compensation for having had a much-needed night's rest ruined by a drunken reveller, let alone paying for the expert opinion. There are very few people these days who can afford the luxury of indulging in alcohol to the extent of placing their sobriety in question, and those who are in the privileged position of being able to do so can surely afford to pay the doctor a guinea by day, or two guineas by night, for services which may be the means of saving them from being sent to prison.—I am, etc.,

Melton, Suffolk, May 23rd. W. BROOKS KEITH, M.D.

Medico-Legal

ALLEGATION OF NEGLIGENCE AGAINST SURGEON WITHDRAWN

On May 11th, before Mr. Justice McCardie and a special jury, who were prepared to re-try the action, it was announced that a settlement had been reached in the case of Moore and Wife *v.* Ligat, which had previously come before Mr. Justice Horridge and a special jury, the jury disagreeing after a six days' hearing. The settlement was on the basis of an *ex gratia* payment, with the withdrawal of all allegations against the defendant.

Mr. H. H. Joy, K.C., and Mr. F. W. Wallace appeared at both courts as counsel for plaintiffs, and Mr. Roland Oliver, K.C., and Mr. H. C. Dickens for defendant. The defence was instructed by Messrs. Hempsons, acting on behalf of the Medical Defence Union.

In this case it was alleged that the defendant, Mr. David Ligat, F.R.C.S., had performed an operation on Mrs. Moore so negligently and unskilfully that the sight of her left eye had been destroyed, with the result that she could not carry on her occupation as a dressmaker. It appeared that some time before June, 1927, Mrs. Moore attended the out-patient department of the Buchanan Hospital, St. Leonards, for deflected septum and polypi. On examination by Mr. Ligat, surgeon in charge of the ear, nose, and throat department of the hospital, both nostrils were found plugged with multiple polypi, and the infection was setting up retrobulbar neuritis. An operation was arranged, and was performed by Mr. Ligat. He began to operate on the right side, first removing the polypi and then the turbinate bone, and the ethmoidal cells were cleaned out. He then proceeded to operate on the left side, but, unfortunately, instead of the turbinate bone coming away at its root, the ethmoidal cells, owing to the progress of the disease, came away with the turbinate, leaving a free opening between the nasal and the orbital cavities. This condition, not infrequent in operations, was recognized at once, and the surgeon refrained from plugging the nose, so as to ensure free drainage for any bleeding which ensued. Shortly after the operation it was noticed that the left eye was swollen slightly, and by the time the surgeon arrived the patient complained of loss of sight in the eye, and it was clear that there had been extensive haemorrhage into the eye, due to the breaking down of the partition wall. The defendant did what he could to relieve the position, hoping that the sight would recover when the haemorrhage was absorbed, but owing either to pressure from the haemorrhage on the already diseased optic nerve, or else to a thrombosis which very possibly existed prior to the operation, Mrs. Moore never recovered the sight of the eye.

On behalf of the plaintiffs, negligence and lack of skill were alleged in that Mr. Ligat appeared to have severed or injured beyond remedy the left optic nerve, or the arteries or veins, or that he failed to use reasonable care and skill in operating on or near the orbital plate of the ethmoid bone, and by means of his instrument penetrated and removed part of the orbital wall. On behalf of the defendant it was urged that if he had not operated at once the patient would certainly have lost the sight of this eye, and possibly of both, and that there was also a danger of loss of life from meningitis. Mr. Ligat himself was of opinion that the loss of sight was due to haemorrhage, and this view was shared by Mr. J. F. O'Malley and Mr. Somerville Hastings, both of whom gave evidence on his behalf. Both these witnesses agreed that the breaking down of the partition—that is, the ethmoidal cells between the nasal and the orbital cavities—could not be avoided in these cases, though it was not usually attended with such dire results. Mr. M. H. Whiting, who also gave evidence for the defendant, considered that the loss of sight was due to thrombosis, but he also agreed that the accident, if it might be so termed, was unavoidable, and that the condition found was quite compatible with Mr. Ligat's account of the case. A good deal of conflicting evidence was given as to the circumstances of Mrs. Moore's admission to the hospital, and as to whether she had complained of failing eyesight before the operation, which she strongly denied having done.

As stated, the jury disagreed.

When the re-trial of the action was about to begin, Mr. Joy, for the plaintiffs, said that the jury would not be troubled with the case. He had advised Mrs. Moore to accept a sum which the defendant had offered—she would receive £75 clear—but this in no way involved any admission of negligence on the part of the defendant. It was an *ex gratia* payment, and accepted in that spirit. The allegations of negligence were all withdrawn. He believed the plaintiffs were well advised to take this course. The "accident" had resulted in loss of sight of one eye, but he hoped that the lady would be able to make good use of the remaining eye and resume her occupation.

Mr. Roland Oliver said that, as all the expenses were borne by the Medical Defence Union, this was, for the surgeon, not a matter of money in the least; he was there to defend his reputation. His reputation was now vindicated by the frank and generous admission of counsel on the other side. The action, had it been retried, would have been costly, and it was better that the defence should offer to make some monetary payment. The reputation of the surgeon he was defending was fully restored and untarnished.

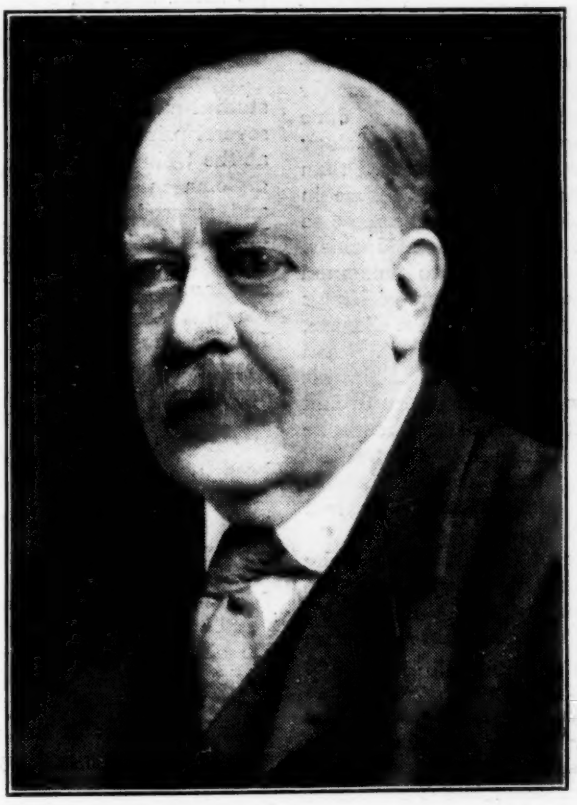
Mr. Justice McCardie said that he felt sure the parties had been well advised. The complete withdrawal of any suggestion of negligence had doubtless achieved the object with which the defendant and the Medical Defence Union had contested the case. He assented with pleasure to the compromise whereby £75 was paid to Mrs. Moore, and all allegations of negligence against Mr. Ligat were completely withdrawn.

Obituary

W. D. HALLIBURTON, M.D., D.Sc., F.R.C.P., LL.D., F.R.S.

Emeritus Professor of Physiology, King's College, University of London

The death of Professor Halliburton at the age of 70 takes from us one of the great figures in the science of medicine in the last forty years. He had gone on holiday to Cornwall, as was his wont, but illness overtook him, and he passed away after an operation in a nursing home in Exeter on May 21st. His death, however, was not altogether unexpected, for since his retirement from his chair at King's College he had been far from well, and although he took a lively interest in affairs until quite recently, it was evident to his friends that he was slowly fading. In a physical sense Halliburton was never a robust plant — indeed, his whole life was a conquest over infirmity, and few men would have succeeded, as he did, in making one almost forget that he never had the power of his right hand. And yet few men have led more useful lives or have earned the right to be numbered among those to whose vision the world owes much, for he was one of the first to recognize the importance of chemistry in medicine, and he is remembered as one of the founders of the science of biochemistry.



William Dobinson Halliburton was educated at University College School, and subsequently at University College, where, after holding the usual clinical appointments, he became Sharpey scholar, and graduated B.Sc. in 1879. In 1883, when he became M.R.C.S., he was appointed assistant in physiology in University College under Professor (now Sir Edward Sharpey) Schafer, in succession to McWilliam, who became professor of physiology in the University of Aberdeen. He obtained the M.D. degree in 1884, and the M.R.C.P. diploma in the following year, and was elected a Fellow of the Royal College of Physicians of London in 1892. On the retirement of Gerald Yeo in 1889, Halliburton was appointed to the chair of physiology at King's College at the early age of 29. For thirty-four years he was at King's College, and although the world knows him for the work which he did there in the interests of physiology, few know how much he did for the College, for he took a lion's share in its administration. He was for many years dean of the Faculty of Medical Science, and on the death of Principal Burrows he acted as chairman of the Professorial Board. He was a member of the College staff in its dark days, and the College was indeed fortunate in such times of stress that it should have had in a central position one whose worldly goods made him independent of the then meagre College emoluments, and who devoted himself so ably and so whole-heartedly to its welfare. Had he chosen he might have led a life of leisure, but Halliburton was not such a man, and to him more than to any other single man the Medical Faculty at King's College owes its very existence. He resigned from his chair in 1923 on account of ill-health, and was made Emeritus Professor by the University. It is a happy thought to realize that he lived to see his years and years of labour fructify, for since the war the Faculty which he nurtured has grown to proportions previously undreamed of; and now it is one of the largest in London. In 1928 he himself had the pleasure of opening the extensions to the Department of Physiology—extensions which to him had been but a land of promise into which he never entered; and during the last year, when his physical activities were very limited, no one was more interested in the further extensions now in progress.

At King's College Halliburton gathered round him a number of able investigators—Brodie, Locke, C. J. Martin, Rosenheim, Da Fano, to name but a few—and many men now most distinguished clinicians were his pupils. He came particularly in contact with Ferrier and Mott, and there is little doubt that in some part this association was responsible for his making a special study of the chemistry of nervous tissues. It is interesting to remark that it was his researches, and those of Rosenheim in his laboratory, which led to the discovery that cholesterol might contain as impurity ergosterol, in which we now know vitamin D is developed under the influence of ultra-violet light. In these researches there is an untapped mine of knowledge still to be drawn upon in the interests of medicine. His biochemical laboratory — improvised in a corridor, and the first in London—rapidly became the Mecca to which large numbers of young biochemists came for instruction and inspiration. His early work was largely in relation to the biochemistry of the proteins of muscle and blood. For this work he was made a Fellow of the Royal Society in 1891. In the nature of things many of his discoveries have passed from current knowledge, but they will ever stand as essential stepping-stones in the advance of knowledge of the subject. He did not, however, confine himself strictly to biochemistry. With W. E. Dixon he carried out researches on the cerebral circulation and the cerebro-spinal fluid. He was one of the founders of the Biochemical Society, of which he was the only honorary member.

As a writer the name of Halliburton is a household word in medicine, and as such he joins the immortals. His name was as well known abroad as at home. Not only was he a brilliant writer, but he was assiduous to a degree that in our time appears phenomenal, the more so when we remember that he did all his writing with his left hand. Undoubtedly his greatest work is his *Textbook of Chemical Physiology and Pathology*, a volume of some 900 pages published in 1891. It collected together for the first time all the known information on this subject, and even to-day it is still used as a book of reference. His best-known book is "Halliburton's" *Physiology*, which for the last thirty years has been the vade-mecum of

the medical student. It was originally "Kirkes's" *Physiology*, but he made it more popular than it ever was before. During his authorship, which began in 1896, there were nineteen editions, and no fewer than 125,000 copies were published. It has twice been translated into Chinese. In addition, he published a vast number of scientific papers, of which his *Essentials of Chemical Physiology* is still widely used at home and abroad. Others include *The Chemical Side of Nervous Activity* (Croonian Lectures, Royal College of Physicians, 1901), *Biochemistry of Muscle and Nerve* (1904), and *Physiology and National Needs* (1919). In 1916 he was asked by the Physiological Society to take over the editorship of *Physiological Abstracts*, which the society had decided to inaugurate. During his editorship the journal became firmly established, and now it is a periodical of international importance. Halliburton had already shown his great facility at this kind of work in writing the physiological section of the annual report of the Chemical Society.

Much of the work which he undertook was of the thankless variety, and carried with it none of the glamour which leads to material reward, but few have done more than he to spread the gospel of British Physiology and British Biochemistry. No one was more pleased than he to see the Royal Society elect, for the first time in history, a biochemist to its presidential chair, the more so since its choice was his friend Sir Frederick Hopkins. The Universities of Aberdeen and Toronto honoured Halliburton with their LL.D.; he was a Fellow of King's College and of University College; member of Senate, University of London, 1900–3; member of Council, Royal Society, 1898–1900. As a speaker Halliburton in his heyday had few equals, and when it was necessary to find a physiologist who could delight a popular audience he was often selected for the task. It was indeed a tragedy that in his later years this should have been the faculty which was slowly taken from him. But frailty had already tested his great spirit, and he murmured not.

As a man Halliburton was one of the old school, who knew how to make up his mind and to carry a clear-cut decision to its conclusion. Yet he was ever lovable and approachable. He had, among his more intimate friends, a great sense of humour, and nothing he enjoyed more than a comic song, at which he would often laugh immoderately. His kindly attitude to his students was nowhere better to be seen than on the occasion of the presentation by his students on his retirement. His short speech did not begin in the usual way, but "Boys and girls," and everyone felt the pathos of the occasion when he knew he was saying good-bye for ever to the students he loved so well. They often asked his help, and none asked in vain. His house—Church Cottage, nestling beside Marylebone Parish Church—was well known to his many friends, for he was ever a generous entertainer, and in this he was assisted by his wife, now his widow, who in his later years has been his faithful and ever-present companion in his hour of need. Often the possibility of moving to a more convenient house was discussed, but more and more it became evident that it was his earnest desire to remain in the atmosphere which was filled with the memories of more energetic days. Gradually he began to lose the friends of his own time, and we all knew that he sadly missed his great companion Sir Frederick Mott. Now that his own chapter closes, well may we thank God that men such as Halliburton have lived and shown us how to live.

R. J. S. McDOWALL.

Professor Halliburton had been for many years a member of the British Medical Association. At the Annual Meeting in 1893 at Newcastle-on-Tyne he held office as vice-president of the Section of Anatomy and Physiology, and he was president of the Section of Physiology at Ipswich in 1895, and again at Toronto in 1906. For five consecutive years—from 1909 to 1914—he received scientific grants from the Association. Many contributions from his pen appeared at different times in the *British Medical Journal*, and his Oliver-Sharpey Lectures on "New facts in relation to the processes of nervous degeneration and regeneration" were published in these columns in 1907.

[The photograph reproduced is by Elliott and Fry.]

SEYMOUR TAYLOR, M.D., F.R.C.P.

Consulting Physician, West London Hospital

We regret to record the death, on May 20th, at his home in Wembley Park, of Dr. Seymour Taylor, who practised for many years as a consulting physician in London, and was well known in medical circles for his kindly, genial disposition.

Seymour Taylor was born at Derby in May, 1851, and studied medicine at St. Thomas's Hospital, where he won several prizes and acted as demonstrator of anatomy, and at the University of Aberdeen. He obtained the M.R.C.S. diploma in 1872, graduated M.B., C.M.Aberd. in 1877, and proceeded M.D. in 1881, in which year he became M.R.C.P.Lond. Securing election to the visiting medical staff of the West London Hospital, he served in turn as assistant physician, physician, and consulting physician. He was also for many years physician to the North London Hospital for Consumption. He had been an examiner in anatomy at Aberdeen University, and was examiner in medicine for the English Conjoint Board for four years. In 1900 he was elected a Fellow of the Royal College of Physicians of London. He had long been physician to the Equitable Assurance Company. He was a past-president of the West London Medico-Chirurgical Society, and at one time treasurer of the Medical Defence Union.

Dr. Seymour Taylor was the author of two books, an *Index of Medicine*, published in 1894, and a little work, *Health for the Middle-Aged*, which reached a third edition. He also contributed papers on clinical subjects to professional journals.

Dr. ALGERNON D. BRENCHLEY writes:

I should like to add my tribute as one who has enjoyed the privilege of Seymour Taylor's friendship for fifty-four years, during the whole of which he never uttered one single unkind word. We were fellow students, and took our degree at the same time. He afterwards became physician to the West London Hospital, and lived in Seymour Street, Portman Square, till he retired. He was an excellent physician, a very sound clinician, full of common sense, with broad views, of a sympathetic, confident, cheerful nature, with, at proper times, a humorous vein. He paid much attention to life assurance, and was most of his life on the staff of one of the oldest companies, who thought so highly of his services that they continued to pay his full salary for life after his retirement. During the war he served on many medical boards. In private life he was a man of great personality and character, staunch to his friends, of whom he had many. His interest in sport was great; he loved fishing, golf, and country life. He was a member of the Savage Club, and was always the best of company at dinners and public meetings; he loved a witty tale, and told many himself. He is survived by Mrs. Seymour Taylor, and his son, Captain S. Taylor, R.A., and his daughter, who is secretary of the British Legation in Lisbon. Many will miss him, but none more than the writer of this note.

We regret to announce the death of Dr. W. D. PATERSON of Murrayfield Avenue, Edinburgh, at the early age of 30. He graduated M.B., Ch.B. at Edinburgh in 1923, and in 1927 obtained the B.Sc. degree at Oxford. A colleague (W. F. H.) sends the following appreciation: Only those of us who knew him will realize the extent of the loss the medical profession, and those of the public who would, in the natural course of events, have come under his care, have suffered in the death of William Dallas Paterson at the outset of what must have been a brilliant career. Son of a physician who was beloved, I have heard on all sides, by his patients, he would, in his turn, have occupied a position as trusted adviser to his patients and friends. Paterson was a profound thinker, an earnest inquirer, and, above all, conscientious. During his university career he threw himself heart and soul into every subject in the curriculum, studying each for the time being as if it were to be his life-work; physiology perhaps interested him most. After graduation at Edinburgh he went to Leith Hospital, where he spent a year studying clinical medicine in its practical aspects; he brought to this study the mind of the true student—the keen desire to find the prime cause, to evaluate accurately the effects of his treatment—and a profound knowledge of the basic sciences, which, alas! most of us do not possess. It was during this year that I associated with him most and came to know his true worth. After Leith came Oxford, where he attended a course in human physiology, and later worked at the hospital. During this time Paterson worked on a portable instrument for recording graphically systolic and diastolic blood pressures and fluctuations therein. At the time of his death he had but recently returned from a sojourn in Canada, where, at the Royal Victoria Hospital, Montreal, he continued his work on the same apparatus with encouraging results. His death on the threshold of his career, after spending so many years fitting himself for it, is indeed a tragedy, the more unexpected because of his apparent good health. He was always energetic; a keen walker, and in athletics a runner of merit, having won the mile at his school, Edinburgh Academy.

We regret to record the death, on May 12th, of Dr. JOHN OWEN JONES of Holywell. After obtaining the diplomas of the Conjoint Board in Scotland in 1886, he was appointed surgeon to the Flintshire Dispensary and Holywell Cottage Hospital, and medical officer in charge of the Holywell Auxiliary Hospital. He was also certifying factory surgeon, surgeon, and examiner of the St. John Ambulance Association, and an approved lecturer of the Central Midwives Board. A prominent member of the British Medical Association, he served as chairman of the Denbigh and Flint Division in 1912–13. He was a justice of the peace, and an alderman of the Flintshire County Council, the retention of which dignity compelled him to resign his offices under the Poor Law, through the introduction of the new Local Government Act. He was, however, appointed a member of the Public Assistance Committee. Dr. Jones was a member of the Court of Governors of University College, Bangor. He took great interest in Welsh literature, and always kept himself abreast of new medical work. He was a Liberal in politics and an elder of his church. A hard worker and with a large experience, he was often able to give valued advice to his colleagues and medical neighbours, by whom he was highly esteemed. He died in his sleep on returning home to bed from a very early consultation about one of his old patients. He leaves a widow, four daughters, and one son, who is a member of the medical profession.

The following well-known foreign medical men have recently died: Professor KARL L. SCHAEFER of Berlin, an authority on the physiology and pathology of the ear, aged 74; Professor OTTO HUNTEMÜLLER, formerly director of the international health office in Jerusalem, aged 53; Dr. UBALDO FERNANDEZ, professor of clinical obstetrics and director of the Alvear Maternity Hospital at Buenos Aires, aged 55; and Dr. PAUL SIMON, formerly professor of pathology at Nancy, aged 73.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on May 22nd the degrees of M.B. and B.Chir. were conferred on F. G. Wood-Smith.

John Lane Presentation

The presentation to John Lane, senior steward of the University Anatomical Department, will be made on Tuesday, June 2nd, at 5 p.m., in the Anatomy School. It will consist of a gold watch and chain, together with a cheque, a short address, and a list of the subscribers, whose presence will be welcome on the occasion.

UNIVERSITY OF LONDON

Sir Ernest Graham-Little, M.P., M.D., has been re-elected by Convocation a member of the Senate.

Dr. E. L. Kennaway has been appointed to the University Chair of Experimental Pathology at the Cancer Hospital (Free) from May 1st.

The title of Emeritus Professor of Experimental Pathology in the University has been conferred upon Sir Charles Martin, M.D., F.R.S., and that of Emeritus Professor of Biochemistry on Dr. Arthur Harden, F.R.S., on their retirement from the Lister Institute of Preventive Medicine.

The title of Professor has been conferred on Dr. C. R. Harington, F.R.S., in respect of the post held by him at University College Hospital Medical School.

The Dunn Exhibitions in Anatomy and Physiology for 1931 have been awarded to E. W. Bintcliffe of St. Bartholomew's Hospital Medical College, and to S. O. Aylett of King's College.

UNIVERSITY OF DURHAM

On the occasion of the Marquess of Londonderry's installation as Chancellor of Durham University, on May 20th, Lord Dawson of Penn, President of the Royal College of Physicians of London, received the honorary degree of D.C.L.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons adjourned on May 22nd till June 2nd, and the House of Lords from May 21st till June 9th.

On May 20th the House of Commons considered the Representation of the People Bill on report, and decided, by a majority, that at a General Election no person should vote in more than one constituency. The Government refused to make an exception for the University elector.

The Architects Registration Bill, which has passed the Commons, was read a third time by the Lords on May 21st.

Silicosis and Asbestosis (Medical Fees) Regulations, dated May 18th, 1931, have been laid on the tables of both Houses.

The Housing (Rural Workers Amendment) Bill was read a third time by the House of Commons on May 21st.

On May 21st the Home Secretary told the House of Commons that, in view of the legislation to which Parliament was committed and the present state of business, the postponement of the Factories Bill to next session seemed inevitable. On the same day the Prime Minister said he could hold out no hope of time being found for discussion of the Nursing Profession (Wages and Hours) Bill.

Alcohol and Motorists

At the House of Commons, on May 20th, Mr. Herbert Morrison received a deputation of medical men, who came to advocate the issue by the Minister of Transport to all applicants for a driving licence of an "alcohol warning card" similar to those issued by police authorities in Berlin and in Ontario. The deputation was introduced by Mr. Somerville Hastings and Dr. Alfred Salter, and speeches were delivered

by Sir Arthur Newsholme and Dr. H. M. Vernon. These pointed out the effect of small doses of alcohol in delaying the nervous reactions of motorists. Mr. Morrison, in reply, agreed that even the moderate use of alcohol by motorists was undesirable, but said that the issue of such advice was not likely to be respected by the British temperament. The Road Traffic Act had given special attention to the matter.

Shortage of R.A.M.C. Officers

Replying to Dr. Fremantle on May 21st, Mr. PETHICK-LAWRENCE stated that the interdepartmental committee to inquire into the shortage of officers of the Royal Army Medical Corps had not yet been set up, but it was hoped to announce its composition and terms of reference in a few days. Dr. FREMANTLE asked whether consideration was being given to the fact that a great deal depended on the future career offered in civil life after these officers retired, and whether it was possible to include in the committee some representatives of the Civil Services which employed the services of medical officers. Mr. PETHICK-LAWRENCE asked for notice of these questions.

Numbers of Insane and Mental Defectives

Mr. GREENWOOD furnished, on May 21st, a table which showed that on January 1st, 1930, there were chargeable to the State 6,356 insane persons, comprising 909 criminals, 152 in naval or military hospitals, and 5,295 Service or ex-Service patients. On the same date 884 mentally deficient persons were in State institutions. The comparable totals for those chargeable to local authorities on January 1st, 1930, were: insane persons, 126,941; mentally deficient persons in institutions under order, 20,629; other such persons under Section 3 of the Act of 1913, 177; such persons under guardianship (1,559) and in "places of safety" (216) making a total of 22,581 mental defectives chargeable to local authorities.

National Insurance

Mr. GREENWOOD told Mr. Thomas Lewis, on May 21st, that £500,000 was in process of distribution to approved societies in respect of arrears in the contribution year ended July, 1929, owed by persons who would otherwise be subject to reduction or suspension of benefits. A similar sum for the year to July, 1930, would be distributed on receipt of returns from the societies.

Mr. GREENWOOD states that, according to the latest returns, 344 out of 6,784 approved societies and branches in England and Wales have deficiencies in their administration accounts.

Slum Clearance.—In reply to Mr. Charles Williams on May 14th, Mr. GREENWOOD announced that in England and Wales 70 authorities had declared 205 clearance areas containing some 7,500 houses and a population of approximately 39,000. He added that it was too soon for him to express either satisfaction or dissatisfaction with the progress made in slum clearance schemes.

Schools for Epileptics.—In a reply to Mr. Albery, on May 14th, Mr. LEES-SMITH said that six residential special schools for epileptic children, providing accommodation for 609 children, were certified by the Board of Education. None of these schools was in Kent, but most admitted children from any area. Some institutions made provision for children whose mental defect was combined with epilepsy. There was a shortage of accommodation for epileptic children, but the Board of Education offered a grant of 50 per cent. to any local authority or voluntary association establishing these schools, and he hoped an increase in accommodation would result.

Housing in Scotland.—Mr. WESTWOOD, replying on May 19th to Mr. Boothby, said that last year 11,056 State-aided houses were completed in Scotland. This year, up to March 31st, 1,911 houses had been completed.

Pensions.—On May 19th Sir H. CAYZER asked the Minister of Pensions, in cases where a retired regular officer applied for commutation of pension supported by an opinion of his medical practitioner that he was a fit case, sympathetically to consider recommending such a case to the Commutation Board for medical examination before a decision on the application was given. Mr. F. O. ROBERTS said any medical evidence as to his state of health which an officer might submit would always receive full consideration by the Ministry of Pensions.

Gland Grafting in Veterinary Practice.—Mr. SHORT told Mr. Freeman, on May 20th, that gland grafting on living animals had been performed by Mr. Male of Reading in the ordinary course of veterinary practice for the purpose of treatment of the patients. These were not experiments within the meaning of the Act, so that no licence was necessary, nor had the Home Office any jurisdiction in the matter.

Infant Mortality in Scotland.—Mr. WESTWOOD, Under Secretary for Scotland, told Miss Lee, on May 20th, that in 1930 the average infantile mortality rate for the whole of Scotland, excluding burghal areas, was 69 per 1,000 births. The highest rate was 89 per 1,000 in Dumbartonshire, and the lowest 23 per 1,000 in Bute.

Notes in Brief

The report of the Royal Commission on Labour in India is expected towards the end of June.

From January 1st to May 19th, 1931, 45 of the Royal Air Force personnel have been killed in aircraft accidents and 39 injured.

In March, 1931, 203,617 cwt. of skimmed and sweetened milk, condensed, were imported into the United Kingdom.

The Minister of Health cannot at present contemplate the introduction of legislation to amend the Blind Persons Act with a view to increasing their pensions.

Medical News

A garden party in aid of the educational work of the Royal Medical Benevolent Fund Guild will be held at the Royal Botanic Gardens, Regent's Park, N.W., on Tuesday, June 2nd, from 2.30 to 8.30. H.R.H. the Duchess of York (patroness of the Guild) has consented to be present. Particulars and tickets of admission may be had from the honorary treasurer, Mrs. E. D. D. Davis, 46, Harley Street, W.1. (Telephone, Langham 1178.)

The Cavendish Lecture before the West London Medico-Chirurgical Society will be delivered by Professor Julian Huxley at the Kensington Town Hall on Friday, June 5th, at 8.15 p.m.; his subject is "Development in relation to heredity and evolution." A reception will be held from 7.45 p.m., and the annual conversazione will follow the lecture.

An open-air Chadwick Lecture on "Trees and man" will be given by Mr. T. F. Chipp, D.Sc., at the Chelsea Physic Garden, Swan Walk, S.W., on Thursday, June 4th, at 5 p.m.; Sir William J. Collins will take the chair.

Founder's Day will be celebrated by Lord Mayor Treloar Cripples' Hospital and College at Alton, on Monday next, June 1st, when Admiral of the Fleet Sir Roger Keyes will open the Portsmouth Block, which contains the Fourth Destroyer Flotilla and Naval Memorial wards. Viscount Burnham will preside at the function, supported by the Lord Mayor of London, Admiral Sir Lionel Halsey, the Earl of Malmesbury (chairman of the Hampshire County Council), and the Lord Mayor of Portsmouth. Five sections of the new hospital are now completed.

At the inaugural meeting of the congress of the Royal Institute of Public Health, held in the University of Frankfort-on-Main on May 19th, the Harben gold medal of the institute was presented to Professor William Henry Welch of Johns Hopkins University, Baltimore, in recognition of his eminent services to public health. At the same meeting the Rector Magnificus presented to Sir William R. Smith the Ehrlich-Weigert medal of the Medical Faculty of the University of Frankfort. On May 20th, at the Rathaus, the Oberbürgermeister presented to the institute the medal of honour of the city in remembrance of this congress—the first to be held on German soil for nineteen years—and handed the medal to Sir Thomas Oliver, pro-vice-chancellor of the University of Durham, and chairman of council of the institute.

The president (Viscount D'Abernon) and council of the National Institute of Industrial Psychology will receive guests at the Institute, Aldwych House, on the evening of Monday, June 1st, and on the afternoon of Tuesday, June 2nd. Films bearing on the Institute's work will be shown, and a number of demonstrations will be given, illustrating, *inter alia*, the measurement of ventilation and lighting conditions, the influence of rhythm on motor activity, tests of colour discrimination, methods of vocational guidance, the psycho-galvanic reflex, and a test for motor driving.

A medical tour of Czechoslovakian spas is being arranged by the Pistany Spa Representation (38, Sackville Street, Piccadilly, W.1). The party will leave London for Ostend on the morning of August 24th, and will travel direct by sleeping car to Austria, where visits will be made to Linz and Vienna. Four days will then be spent at Pistany, three each at Luhacovice and at Prague, and the party will return via Nuremberg, reaching London on the evening of September 11th.

The president and council of the Harveian Society of London, in continuation of the society's centenary celebrations, will make a pilgrimage to the tomb of William Harvey in the parish church of Hempstead, in Essex, on Saturday, June 13th. The Bishop of Colchester will conduct a short service at twelve noon, when a silver patten, presented by the society, will be consecrated. On the return journey the party will be entertained to tea by Lady Lloyd, at Rolls Park, Chigwell, which was originally the home of William Harvey.

The University of London has added Stoke Park Colony, Stapleton, Bristol, to the list of institutions recognized for practice under Regulation 3 for the Diploma in Psychological Medicine for candidates offering mental deficiency as their special branch under Regulation 4.

The Very Rev. Garfield Hodder Williams, dean of Llandaff, who has been appointed to the deanery of Manchester, studied medicine at St. Bartholomew's Hospital and graduated M.B., B.S. of the University of London.

The third International Congress of Radiology will be held at the Sorbonne, Paris, from July 26th to 31st, with Mme Curie as president of honour and Dr. Antoine Béclère as president. More than 300 communications have been announced. The congress will be divided into six sections: (1) radio-diagnosis; (2) radiotherapy and radium therapy; (3) radio-physics; (4) radio-biology; (5) electrology; (6) natural and artificial heliotherapy. Further information can be obtained from the general secretary, Dr. Ledoux-Lebard, 122, Rue La Boëtie, Paris, 8e.

The sixth International Congress of Industrial Accidents and Diseases will be held at Geneva from August 3rd to 8th, when special attention will be devoted to cutaneous affections in relation to occupation, the influence of previous health on the results of industrial accidents, sequels of traumatic wounds of the spine, trauma of blood vessels, reaction to toxic substances used in industry, diseases of cement and stone workers, and fatigue. Arrangements for the journey and for accommodation in Geneva are being made by Messrs. Thomas Cook and Son. Further information about the conference may be obtained from Mr. G. L. Perry, Industrial Welfare Society, 51, Palace Street, Westminster, S.W.1.

The second International Congress of Light Therapy will be held at Copenhagen from August 15th to 18th, 1932, under the presidency of Dr. Axel Reyn, chief physician to the Finsen Institute in that city. The main topics to be discussed are the part played by the skin pigmentation in the therapeutic uses of light; the way in which light baths act in tuberculosis; sunshine and climate in relation to public health administration; and the report of the international committee on ultra-violet light standardization. Any medical practitioner may attend the congress, and further particulars may be obtained from the general secretary, Dr. A. Kissmeyer, Finsens Lysinstitut, Copenhagen.

The report of the pathological laboratories of the City of London Hospital for Diseases of the Heart and Lungs for 1930 has been issued as a booklet. It contains a summary of the work performed, and reprints of various papers published by Dr. S. Roodhouse Gloyne, pathologist to the hospital during 1930. These laboratories were equipped by the Prudential Assurance Company.

The King has confirmed the appointment of Dr. Alexander H. B. Pearce, chief medical officer, to be a nominated member of the Legislative Council of the Colony of Fiji.

Dr. George Hargreaves has been appointed a nominated member of the Legislative Council of Jamaica, subject to His Majesty's pleasure.

Dr. Simon Flexner, director of the Research Laboratories of the Rockefeller Institute of New York, has been elected a corresponding member of the Académie des Sciences, and Professor Niessl von Mayendorf of Leipzig has been elected a corresponding member of the Société de Neurologie of Paris.

Only two cases of small-pox occurred in each of the years 1929 and 1930 in Germany, and all four recovered, as compared with 11,000 cases in England, with 30 deaths in 1929 and 9,000 cases with 22 deaths in the first half of 1930.

The increased incidence of pellagra of recent years in the United States is shown by the fact that while in 1924 there were only 2.5 cases per 10,000 inhabitants, in 1928 there were 5.7, and in 1929 5.5.

In 1930 six fresh cases of leprosy were notified in Germany. Infection had taken place abroad, in most cases in South America. Ten cases remained under treatment at the end of the year.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM* **9861, 9862, 9863,** and 9864 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is **16,** South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Erythromelalgia

Dr. J. AICKIN writes: I have a case at present of erythromelalgia in a woman, which is very resistant to treatment along the ordinary lines. She has had bromides and liq. trinitrini, and sedative applications to the affected toe. I wonder if any of your readers have had a similar case, and what line of treatment they found useful.

Malnutrition with Ammoniacal Urine

"CARNE" asks for advice about the treatment of the following case: A child, aged 3 years, born six weeks prematurely, fails to put on weight, though growing; urine always strongly ammoniacal, and testicles very incompletely descended.

Income Tax

Motor Car Transactions

"A. R." bought a 12 h.p. car for £425 in 1922 and sold it in 1930 for £40, when he bought a 16 h.p. car for £400. He has made no claim for depreciation.

*** He can claim as a professional expense of the year 1930 £400 − £40 = £360. The net loss of £25 provides no claim, though he would have received an allowance for it if he had claimed depreciation. Presumably the new car is a better one than the original car, but the income tax authorities are not likely to raise that point, as its cost is less than that of the car displaced.

"A. E. B." bought a car in March, 1926, for £225 and sold it in April, 1931, for £15, buying another car (second-hand apparently) for £135. What allowance is he entitled to? He has not claimed depreciation.

*** Depreciation should undoubtedly have been claimed; the omission to make such claims nearly always involves loss sooner or later. The renewal claim which "A. E. B." can make is for £120 only—the amount of his actual out-of-pocket expenditure—and as the expense was incurred during the financial year 1931–32 it will not affect his liability for that year, but for 1932–33.

"F. Z. O." bought a car in 1907 for £550, and since then has had numerous cars, but this year bought one for £515, the majority of the other cars having cost about £350 each. The maximum allowance offered by the income tax authorities is based on a replacement value of £400.

*** We are not aware that the case is covered by direct judicial authority, but we fear that the income tax inspector is right. The cardinal principle is that the cost of improving, as distinct from maintaining, the equipment must be regarded as capital outlay, and it is presumably beyond argument that the present £515 car is a more powerful and better car than the original one at £550. When the price of cars rose during the war the cost of replacement was allowed though it exceeded the cost of the car replaced. "F. Z. O." was in the converse position, apparently, when he was buying his cars at £350, and now has to bear the whole cost of the "improvement."

New Partner: Cash Basis

"P. N. B."—A has been in general practice since 1917, and has throughout been assessed on the cash basis. In 1925 he took B into partnership on a one-third basis, B purchasing one-third of the agreed value of book debts. The income tax inspector now claims that the value of all outstanding debts should be ascertained and tax paid on that amount.

*** We cannot see the justification for such a request. If the gross earnings of the practice are increasing so that the amount of the cash receipts is lagging behind the real earnings there is something to be said for departing from the cash basis and in future basing the assessment on the value of each year's bookings, but not for claiming tax on the amount of the value of the outstanding debts as an additional liability. The whole principle of the "cash receipts" basis is that it yields, taking one year with another, the same gross assessment as the "value of bookings basis"; and as the share of debts which B purchased has, in fact, been included in the cash receipts for assessment purposes, there appears to be no ground for the action suggested. In any case, for which year does the inspector suggest that the supplementary assessment should be made?

Alteration of Previous Year's Assessment

"X X" left his former practice as from November 15th, 1929, and since then has been in practice elsewhere. For the final period his old practice was comparatively unprofitable, "but 1928–29 was a good one financially." The assessment for that year was a small one, and the income tax authorities are now seeking to alter it. Is this correct?

*** Yes; under fairly recent legislation, where a practice changes hands, the assessment on the former practitioner for the year in which the change takes place, *and the previous year* can be altered to the amounts of the actual profits of those years. It is apparently under that provision that the authorities propose to alter the assessment for the year ending April 5th, 1929, to the amount of the profits of the practice for that year.

Allowance of Cost of Subscriptions

"A. T." has been informed by the inspector of taxes that the cost of his subscriptions to the British Medical Association, Royal Sanitary Institute, Society of Medical Officers of Health, and other bodies cannot be allowed as deductions from his income; the authority cited is the decision in Simpson *v.* Tate.

*** Presumably the income in question is the salary of an office or employment, and in that case the inspector's view is legally correct, unless it was an express or implied condition of the appointment that "A. T." should be a member of the societies, etc., specified. This results from the very strict rule applicable to Schedule E. Similar expenses would be allowed if incurred in connexion with general practice the profits of which are assessable under Schedule D.

LETTERS, NOTES, ETC.

Nitrous Oxide Mixtures

Dr. BELLAMY GARDNER (London, N.W.) writes: I consider that a specific name of an attractive character has long been required for nitrous oxide and its mixture with oxygen and small percentages of carbon dioxide. If we look carefully at its chemical composition, we find that only those elements which are present in the atmosphere are contained in it. I suggest, therefore, that the word *aeris*—that is, of air—would be a scientific and euphonious designation for this most acceptable and beneficent anaesthetic. The word "gas" is a misleading generic term, associated in the public mind with various unpleasant and irrespirable gases.

Hypnosis with Spinal Anaesthesia

Dr. E. L. HOPEWELL-ASH (London, W.) writes: In his remarkably interesting study of 250 cases of spinal anaesthesia (*British Medical Journal*, May 9th) Mr. Wilfrid Adams makes an important point when he notes, "Sometimes the patient's mind is not at ease, and to avoid psychic shock requires the most thoughtful care." It is my view that in the induction of definite hypnosis he will find just the adjunct required to complete his technique. Application of a few simple rules will suffice to bring about a mental state characterized by calm and confidence, which can be reinforced by suggestion to an unlimited extent.

Varicose Ulcers

"M. M." writes: I have read the letters in the *British Medical Journal* about varicose ulcers. I wonder if anyone has tried what I have seen somewhere described as an ointment bath. My plan is: A piece of boric lint the size and shape of the ulcer has spread on one side a fairly good supply of boric ointment made with yellow vaseline. Over this is a larger piece of lint put on dry, and the whole is kept in position by inch-wide strips of Mead's plaster going fully around the leg well above and below the ulcer. If I find the plaster irritates the skin I put gauze under it. This dressing is changed weekly, and the patient allowed to go about. The results are really very satisfactory.

Medical Golf

The Divisional stage in the Treasurer's Cup golf competition was played by members of the Dumbartonshire Division at Cardross Golf Course, by the courtesy of the council of the club, on May 13th. In spite of very uncertain weather there was a fair turn-out, and the afternoon proved very enjoyable to those taking part. The result of the game, which was played under medal conditions, members playing from their club handicap, was as follows: Winner: Major M. Purvis, I.M.S. (ret.), Dunbeg, Helensburgh (88 − 11 = 77 net). Runner-up: Dr. L. Crombie, Dunollie, Dalmuir (87 − 10 = 77 net). Major Purvis's score was 42 for the return half, and Dr. Crombie's 46, so that the former was declared the winner. Dr. A. D. Downes, Helensburgh, who was third, participated with the winner and runner-up in the sweepstake.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant residencies and other appointments at hospitals will be found at page 41, 42, 43, 44, 45, 48, 49, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 215.

The Hanie Lectures

ON

HAEMOLYTIC ICTERUS*

BY

LORD DAWSON OF PENN, P.C., M.D., D.C.L.

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON; PHYSICIAN IN ORDINARY TO H.M. THE KING; EXTRA PHYSICIAN TO THE LONDON HOSPITAL

LECTURE II

(With Special Coloured Plates)

COMPLICATIONS AND FATAL CASES

In this series about 40 per cent. of the patients were known to have the biliary tract affected. There were twelve fatal cases in the series, and of these only one followed removal of the spleen; in contrast, there were fourteen patients treated by splenectomy, only one of whom died, and this one from surgical mishap. Of the twelve fatal cases, no fewer than eight died of haemolytic anaemia, two died of cholangitis, complicated in both instances by anaemia, and two of intercurrent disease. Haemolytic anaemia caused death at such varying ages as 3½, 13, 30, 43, 56; the symptoms in some cases appeared unexpectedly and severely, and in others they arose more gradually. The two cases of fatal cholangitis were both complicated by severe anaemia, so that ten out of the twelve deaths were associated with the latter condition. There is, then, a proneness for a severe and destructive anaemia to develop during the life of a patient suffering from acholuric jaundice. A study of the fatal cases in this series makes it clear that most of these deaths were avoidable.

The cases of the Tope children, described in Lecture I, show how haemolytic crises may arise. The cases of Labourne and Bass, also described in Lecture I, show how haemolytic anaemia may recur and finally kill the patients at the ages of 53 and 44, whereas the jaundice of early years may almost have been forgotten.

TREATMENT

The results of splenectomy have been strikingly good; this is an important point. The jaundice disappears quickly, and the red blood count commonly approaches the normal after a short interval. Even with the severe anaemias the recovery is rapid and permanent, and the patients are thenceforth healthy.

The ages of the patients operated on varied, the youngest being 10, and none of the others exceeded 36, except the patient above mentioned who died. There is no reason why splenectomy should not be performed on older patients, though there are obvious advantages in doing it in youth; from the age of 10 upwards children stand the operation well, and adhesions are unlikely to be present. Moreover, the dangers of destructive anaemias are obviated and the complications of the biliary tract are less prevalent. That the latter are real dangers is shown by the fact that seventeen patients in the series had the biliary tract involved, and in two of these biliary infection was the cause of death.

In cases in which both gall-bladder and spleen require operation it is not always wise to deal with them together. When the patient is weakened by a severe anaemia it might be safer to remove the spleen by as rapid an operation as possible and enable the blood to recover; and here may an observer of many such operations say a word in favour of the transverse incision as promoting economy of time and ease in handling.

Preliminary transfusion of blood should not be entertained lightly, certainly not without a pilot dose, for it may be recalled that in two cases of this series (Ford and Bass), although the bloods were most carefully typed, severe jaundice promptly ensued, and aggravated the already serious condition of the patients. In the light of experience the patient Bass would have had a better chance from splenectomy on admission to hospital, despite her grave condition. It is interesting to reflect whether a blood transfusion of this patient *after* splenectomy would have produced the same severe jaundice.

An enlarged spleen in a young patient, even to all appearances well, should prompt watching and repeated observations of the blood. Sometimes a slight jaundice comes and goes; again in some cases it is even absent altogether. Think of B. Tope, aged 10, apart from her family history. She is a bright, merry child of healthy appearance; she has an enlarged spleen; she has never shown any jaundice; her blood picture shows only a slight poverty of red cells. Yet a fragility of 0.6 to 0.4, 13 per cent. reticulocytes, and a positive indirect van den Bergh reaction give the key to the diagnosis, though a superficial examination of the blood would not. There can be no doubt that her spleen should be removed. The justification for not doing splenectomy lies in mildness of the anaemia with low count of reticulocytes and low van den Bergh indirect reaction, all after several investigations under varying conditions. Absence or slightness of jaundice is no justification for *laissez-faire*.

The following case illustrates incompleteness of cure after splenectomy, perhaps caused by undue delay in the performance of the operation. (Reported previously by Campbell.[38])

P. Phil, at the age of 14, was a pale, ill-looking child, with a lemon-tinted skin and an enlarged spleen. Her blood picture was as follows: red blood cells, 1,396,850; haemoglobin, 15 per cent.; colour index, 0.6; white blood cells, 6,000. More than once she had a haemolytic crisis. Nowadays with these findings her spleen would be removed, but in fact it remained till the patient was 29, after she had married, and had given birth to two children. That it was fortunate the delay in splenectomy did not bring her disaster is shown by her family history. One brother "died of spleen" at 1 year old; at the necropsy a very big spleen was found. One brother, alive, aged 5, spleen palpable, was treated, when aged 9 months, at the Evelina Hospital, for "profound anaemia." Mother healthy. A maternal uncle and a maternal aunt have each had their spleens removed. One of the patient's children is yellow. This patient did not completely recover a normal blood count after splenectomy. Thus, on November 19th, 1923, a few months before the operation, red blood cells were 3,750,000, haemoglobin 80 per cent. Splenectomy was performed in 1924, yet, two years after, the blood picture only showed 3,900,000 red blood cells, with haemoglobin 41 per cent., and in 1927, red blood cells 4,400,000, with haemoglobin 54 per cent.

This incompleteness of recovery of the red cell count does sometimes occur (as also in case E. H.), and may be due either to the bone marrow function failing to regain its full powers or to the fact that removal of the spleen is insufficient, and that haemolysis is excessive in other parts of the body, though in P. Phil the fragility was only moderately increased (0.5).

Before leaving this consideration of splenectomy it will be apposite and interesting to set forth the case of "Fordal," on whom the operation was performed as far back as 1887. Spencer Wells did the first splenectomy in England in 1865. His second and third splenectomies he did in 1868 and 1875. All of these were unsuccessful. His fourth splenectomy was performed on this patient when she was 27.

From the age of 9 the patient was troubled with frequent attacks of jaundice. When she was 14 she was growing "so large in front" that her mother was disturbed. At the age of 25 a large abdominal tumour was discovered below the umbilicus and near the centre of the abdomen, and was thought to be a fibroid. After two years' observation the tumour was noted to be larger, and the attacks of jaundice

* Delivered before the Northern Counties and Newcastle-upon-Tyne Medical Society on February 19th and 26th.

more severe, and accompanied by abdominal pain. It was decided, therefore, to remove the tumour. This was in the year 1887, three years before Minkowski first described acholuric jaundice. On opening the abdomen, two to three pints of ascitic fluid escaped, and the tumour was found to be a spleen, which was freely movable. Spencer Wells removed the spleen, which weighed 11 lb. 14 oz. The patient recovered, and her jaundice disappeared for good.

Two reflections suggest themselves: (1) the courage of the operator with the limited resources of his day and with the experience of all his three previous patients having died; (2) how imperfections in asepsis are in some measure counterbalanced by operative skill.

Over forty years have passed, and this patient is for her age enjoying good health. The fragility of her blood was examined a few years ago and was found to be still increased. Her only son developed haemolytic icterus in early childhood, and obstructive jaundice at about the age of 14. Two operations were performed by James Sherren, the first on the gall-bladder, which was full of pigment calculi and mud, and the second for removal of the spleen. The fragility was raised before the operation, and has remained so since—namely, 0.5—the last estimation having been made in 1927. Recovery was complete. This patient served throughout the great war.

The study of this disease illustrates the work of two master minds of the last century—Virchow in 1847, who concluded that bile pigment was formed outside the liver, and Spencer Wells, who in 1887 was the first to effect a cure of the disease by splenectomy.

PATHOLOGY

It is convenient to begin with the reports of the post-mortem examinations of Bass and Labourne. For these I am indebted to Professor Turnbull.

Necropsy Report on Patient Bass

Spleen, enlarged and firm, weighing 16¾ oz., with a swollen, moist, dark red pulp; minute distinct trabeculae and Malpighian bodies; few shallow, ill-defined subcapsular areas of induration and brown pigmentation.

Liver, enlarged (4 lb. 10 oz.), dark brown, with distinct lobular pattern, pale brown centres, and dark brown peripheries; gall-bladder and common bile duct normal.

Kidneys, enlarged (14½ oz.), with oedema, parenchymatous degeneration, and mottled greenish-brown jaundice.

Marrow, very rich and cellular, mottled with dark red in femur, ribs, sternum, and tibia (except for patches of fat in lower third). Jaundice of lymphatic glands, of ascitic fluid, of leptomeninges, of dura, and of ventricular fluid, but not of brain substance.

Necropsy Report on Patient Labourne

Spleen, greatly enlarged (2½ lb.), with fibrous peritoneal adhesions; cut surface showed a rich dark red pulp, with large irregular paler red areas; trabeculae and Malpighian bodies distinct; not enlarged; infarct anterior surface.

Liver, enlarged (5½ lb.), cut surface oedematous, and showing a slight rusty tinge. Liver gives marked free-iron reaction.

Gall-bladder contained about fifty faceted friable pigment calculi. Common bile duct showed no dilatation or stricture, and contained twelve small pigment calculi.

Kidneys gave marked reaction for free iron with Prussian blue test (Fig. 1 on Plate).

Marrow. Right femur, right tibia and humerus, and lumbar spine and sternum were occupied throughout with rich red marrow. Beneath the parietal pleura in the costo-vertebral angles and on the left side of the sixth to tenth thoracic vertebrae were four nodules of ectopic marrow (Fig. 2 on Plate). They were in close contact with bone, and showed a ragged surface, where dissected from it. The cut surface of a nodule was red and homogeneous (Fig. 3 on Plate).

Microscopical Findings

I will now pass to the microscopical appearances in Labourne's case; for the demonstration and account of these I am indebted to Dr. W. D. Newcomb.

Spleen.—There is an irregular thickening of the capsule and slight fibrosis of the trabeculae. The Malpighian bodies are small, usually consisting only of a collection of lymphocytes around the eccentric artery. Many show hyaline degeneration, which is also present in the walls of many arteries and veins. The most noticeable change is in the pulp, which is engorged with red blood corpuscles. In the normal spleen pulp red blood cells and nucleated cells are about equal in numbers, whereas here red cells are in considerable excess. The venous sinuses are small and collapsed, containing a little albuminous fluid and a few red cells. Their lining endothelium is greatly swollen. There is no fibrosis or proliferation of reticulum cells in the pulp. A very few phagocytes containing red blood cells are present near some of the Malpighian bodies. Much iron-free pigment (haemofuscin) and a little iron-containing (haemosiderin) is present. In four out of seven blocks of spleen examined, fibrous nodules containing haematoxyphile strands are present. They are nearly all near blood vessels, and some involve the elastic tissue of the arterial wall. The dark staining filaments contain iron salts, as is shown by the Prussian blue test (Fig. 5 on Plate). They are the so-called Gandy-Gamna[40 41] nodules described by Gibson,[42] and have been found in many cases of acholuric jaundice as well as in other conditions.[43]

Liver.—The liver closely resembles that seen in pernicious anaemia. Much brown pigment, mostly haemosiderin, is present in the liver cells. Fatty degeneration of the cells at the centres of the lobules is also present. Fig. 6 on Plate (potassium ferrocyanide and basic fuchsine) shows the liver cells to be peppered with haemosiderin, and especially in the region towards the portal canal. Kupffer cells are also seen to contain red cells and iron-containing pigment.

Kidney shows well-marked haemosiderosis. The pigment is present mainly in the convoluted tubules and ascending limb of Henle's tubules.

Lymph glands are oedematous and their small vessels engorged. The germ centres are small and the lymph sinuses large. Most of the field is taken up by a lymph sinus containing numerous lymphocytes. The endothelium lining the sinuses is swollen, and many cells are free in the sinus. The reticulum cells are also active, and help in the formation of numerous macrophages, which fill both cortex and medulla of the glands. Some of these macrophages contain red blood corpuscles, and a few contain brown pigment, a little of which is haemosiderin.

Heart shows fatty degeneration, with a "tabby-cat" distribution and slight brown atrophy.

THE MARROW

Let us pass now to the minute anatomy of the marrow in the first instance that of the femur and ectopic nodules belonging to Labourne, whose case represents the terminal stage of the disease, and with these the marrow of the child P. Tope, whose spleen was removed, that of W. G. which represents a milder form, and that of Bass the severe form, of the disease. These marrows have certain features in common. To the naked eye they are rich dark red marrows, with an absence of fat; under the microscope they are haemoblastic more than leucoblastic, and normoblasts are more numerous than megaloblasts; in a well-balanced case like W. G. they are twice as numerous.

Similarly, mitotic figures show a varying prominence in these marrows. In W. G. marrow they were prevalent, while in Bass and the child P. Tope scarce (see figure on opposite page). They were a prominent feature in the ectopic marrow of Labourne. This ectopic marrow (Fig. 7 on Plate) represents in striking fashion a hyperplasia—an endeavour of the blood-forming organ to meet the increasing drain of haemolysis. It is notably erythroblastic and active; mitotic figures are numerous in both myeloblasts and erythroblasts; many endothelial cells and some megakaryocytes are present. Free iron was found in the capsule of the nodule.

Formation of extramedullary marrow has been reported in the literature.[44] Thus Dorsey Brannon[45] reports the case of an infant with splenomegaly and anaemia in which

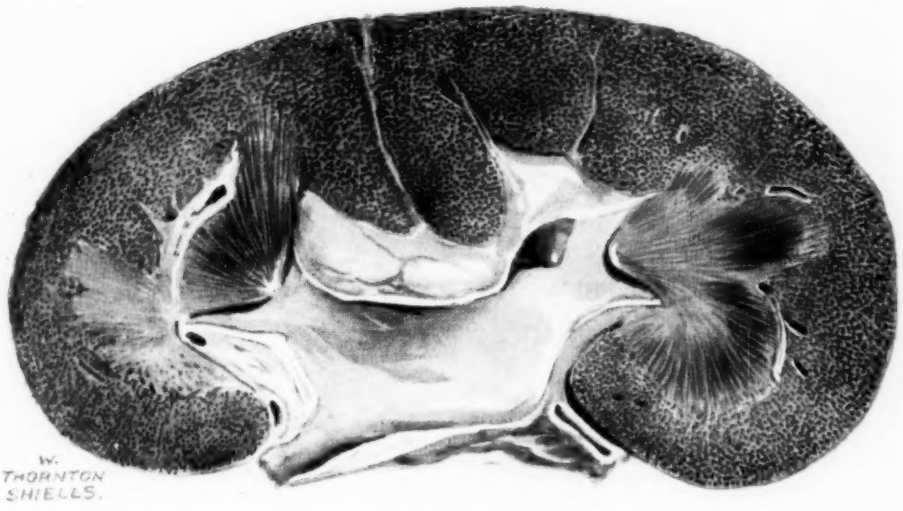


FIG. 1. Cross section of Kidney showing Prussian Blue reaction for iron.

FIG. 2. Extramedullary marrow shown *in situ* in costo-vertebral angle.

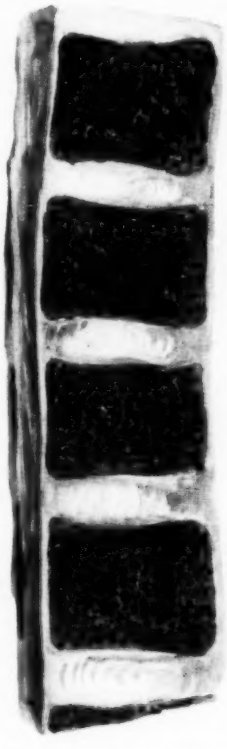


FIG. 4. Section of vertebral column showing red hyperplastic marrow.

FIG. 3. Extramedullary marrow incised—showing dark red structure.

FIG. 5 Spleen showing Gandy-Gamna Nodule
A. Haemofuscin in phagocyte. *B*. Lumen of small artery.

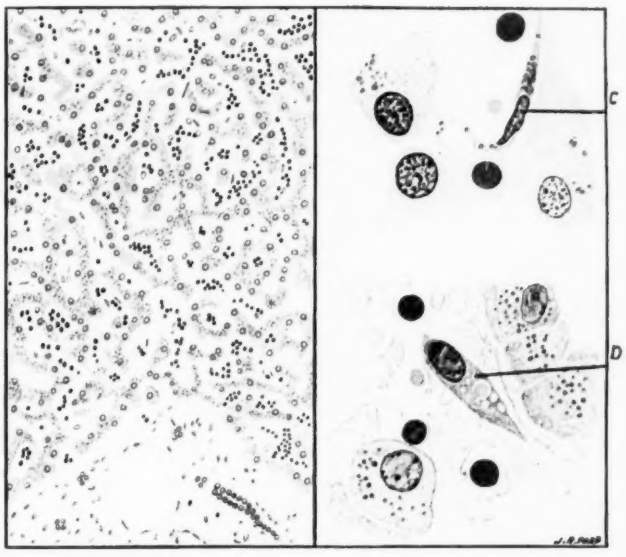


FIG. 6. Liver showing Haemosiderin.
C. Kupffer cell containing haemosiderin. *D*. Kupffer cell with ingested erythrocyte.

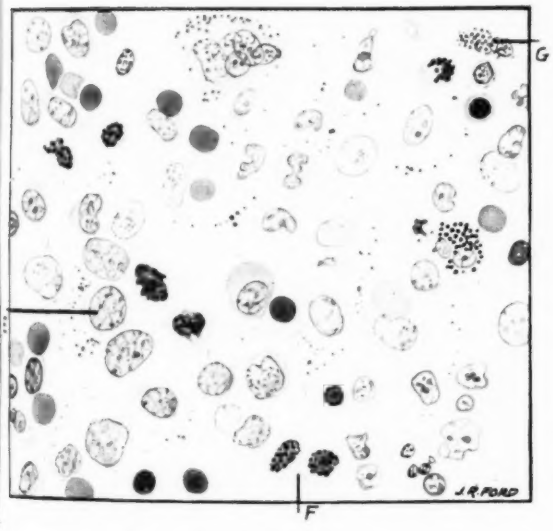


FIG. 7. Ectopic Bone Marrow.
E. Myeloblast. *F*. Dividing Erythroblast. *G*. Eosinophil.

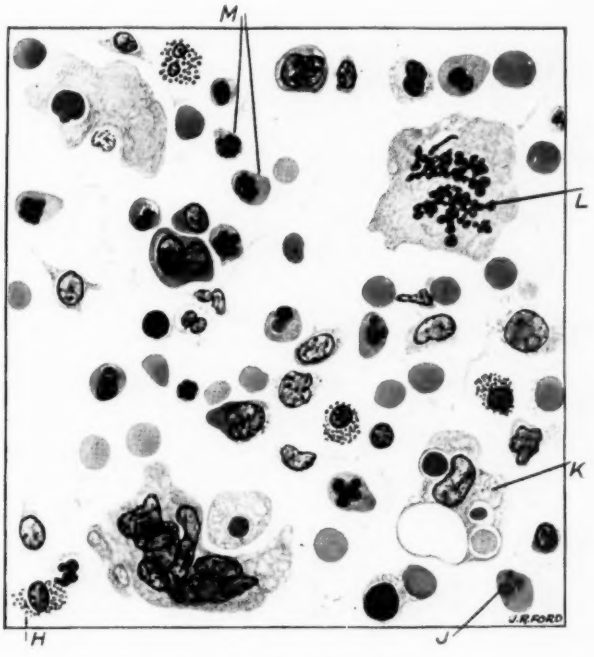
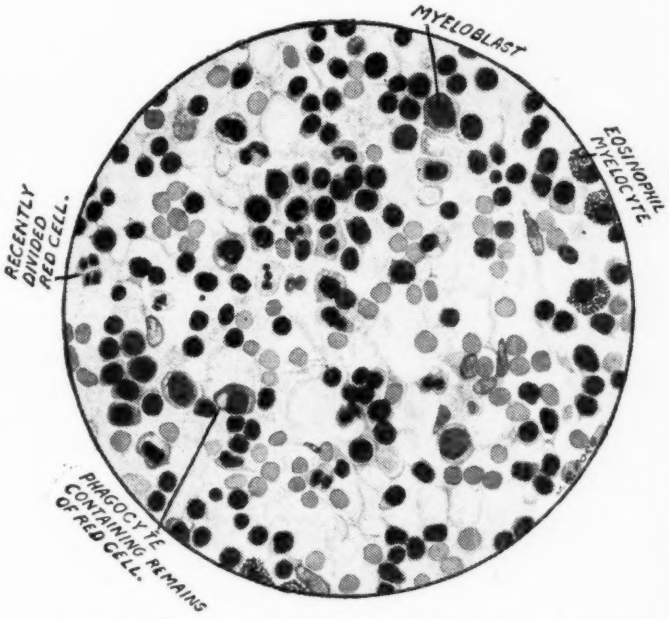


FIG. 8. Bone Marrow from Femur.
H. Eosinophil. *J*. Erythroblast showing karyorrhexis. *K*. Macrophage with three ingested erythrocytes. *L*. Mitosis in megakaryocyte. *M*. Dividing erythroblasts.

the hila of the kidneys were filled with red nodules containing the elements of hyperplastic marrow. Rich[46] has mentioned the occurrence of kidney-sized masses of bone marrow tissue in the thorax of a man who died from haemolytic jaundice.

Reverting to the case of Labourne, side by side with this evidence of a struggle to form new blood we have the evidence of a severe and fatal blood destruction. In the spleen there is evidence of active haemoglobin disintegration, but the amount of iron is not excessive. The haemoglobin is broken up there into bilirubin and iron-containing pigment, but these products pass away in the blood stream, the former in solution and the latter probably within endothelial cells. The pigment is found in large quantities in the liver and kidneys. Recall the section of liver which showed the polygonal cells to be packed with these pigment granules (Fig. 6 on Plate). The kidneys also showed well-marked haemosiderin, much pigment being present in the convoluted and Henle's tubules. The section of the bone marrow of Labourne (Fig. 8 on Plate) shows a more advanced stage, approximately to the marrow found in pernicious anaemia

It follows, therefore, that the naked-eye and microscopical manifestations of active marrow are evidences of endeavour but not of successful performance. A small amount of hyperplastic marrow will give the appearances that are to be seen in the femur, vertebrae, and other bones of Labourne, but these appearances are no measure of the marrow's output.



Section of bone marrow (P. Tope) taken by biopsy; showing erythroblastic reaction with few mitotic figures.

In acholuric jaundice the increased destruction of red cells is met, and for a time successfully, by increased red cell formation, as evidenced by the presence of reticulocytes and microcytes, with often a low red blood count and with even apparent health and an active normoblastic marrow. As time goes on the haemolysis holds greater sway. The capacity for blood formation declines and the blood picture approximates more to that of pernicious anaemia, in which impaired blood formation is a feature, side by side with blood destruction.[47 48] There remains, however, the essential difference that the marrow in pernicious anaemia is megaloblastic during the relapses and normoblastic during the remissions, whereas in haemolytic icterus it remains normoblastic throughout, though the number of megaloblasts is increased.

Put in another way, the dominant lesion in acholuric jaundice is haemolysis, which in the early stages is met by the overaction of healthy marrow. When the stage of exhaustion appears the marrow becomes more normoblastic, and eventually shows a tendency towards the megaloblastic ; whereas in pernicious anaemia the marrow is in an exhausted state from the onset of the disease. In both alike the presence of an active hyperplastic marrow is not evidence that blood formation is winning ; it represents striving, but is not a measure of successful achievement ; there is a cellular hyperplasia without functional efficiency.

As a contrast to the foregoing it is worth making brief reference to sprue anaemia. Here failure of blood formation is the main feature ; here there is no increased van den Bergh reaction, no reticulocytosis, and the marrow is aplastic.[49] It is possible that the generalized atrophy of the intestinal mucous membrane in sprue prevents the absorption of the necessary anti-anaemic factor, and a blood picture resembling pernicious anaemia results.

Acquired Haemolytic Icterus

The more closely haemolytic icterus is studied the more does doubt grow as to whether in the strict sense an acquired form exists. Manifestations early in life can be so slight as to pass unnoticed or be forgotten. Take the case of Labourne. It was only at the end of her life that her attacks of anaemia were found to be associated with increased fragility. It was only after repeated questionings that the jaundice of her early life came back to her memory, and but for that fact she might justly have been thought to have acquired the disease in adult life.

The slightness or absence of one or more of the manifestations makes it easy for the condition to pass unnoticed. It is only when observation becomes stimulated, and then extended to the patient, or the patient's family, or both, that discovery ensues. For instance, a moderately enlarged spleen may be found in a patient of active life. Investigation may disclose a red cell count of, say, 4½ millions, a fragility within the normal, a positive indirect van den Bergh with no jaundice. If there is no disturbance of the patient's health, and no discovery of any members of the family affected with more typical forms of the condition, the cause of that splenomegaly remains a mystery. All the while, the marrow has been overtaxed, involved in over-production of red cells to maintain equilibrium. But suppose the marrow fatigues as the result of untoward conditions like hardship or illness (for example, a septic process), or the haemolytic process itself becomes accentuated and jaundice appears, there is the further possibility that the fragility may increase, and this, with an inherited overactive reticulo-endothelial system, may turn the scale, causing the symptoms of haemolytic icterus to appear. It is known that fragility can vary and change in the same patient and in different conditions—for instance, in pernicious anaemia it diminishes, while in blackwater fever, as Creed has shown,[50] it may increase. In the sense that latent defects may be accentuated so as to become clinically manifest, haemolytic icterus can be acquired, but the defects themselves are inborn.

Paschkis,[51] discussing the question, describes the case of a patient who, while being treated for abdominal pain and diarrhoea, was found to have a palpable spleen and an icteric tinge. Investigation showed that there were raised fragility (namely, 0.58 to 0.3), indirect van den Bergh 3 units, and marked urobilinuria. This might have been regarded as an acquired case. It was not, but was a congenital haemolytic icterus then for the first

time made manifest. A brother, in excellent health, was found to have an enlarged spleen, a raised fragility, 0.52 to 0.3, and moderate urobilinuria.

I would like to thank Dr. Robert Hutchison, Dr. Otto Leyton, Dr. Theodore Thompson, Dr. Adolphe Abrahams, Dr. Campbell, and Dr. C. S. Atkin for letting me use their cases. One of Dr. Leyton's cases was particularly valuable. I am indebted, also, to Dr. Creed of King's College Hospital for his valuable method of estimating fragility of the blood. I have referred in the text to the reports of Professor Turnbull and Dr. W. D. Newcomb. I gratefully acknowledge the help and criticism of Dr. Mathilde Hunter and Dr. Donald Hunter in the gathering of numerous observations set forth in the text. I have also received valuable aid from Dr. Daniel Davies, and I think it will be admitted that the illustrations by Messrs. Shiells and Ford and Mr. S. A. Sewell are excellent.

REFERENCES

1 Whipple, G. H., and Hooper: *Journ. Exper. Med.*, 1913, xvii, 593.
2 Mann, F. C.: *Amer. Journ. Med. Sci.*, 1921, clxi, 37.
3 Mann, F. C., et al.: *Amer. Journ. Physiol.*, 1924, lxix, 393.
4 Idem: Ibid., 1925, lxxiv, 497.
5 Idem: Ibid., 1926, lxxvi, 306 and 577.
6 Idem: Ibid., 1926, lxxviii, 384 and 658.
7 Mann, F. C.: *Medicine*, 1927, vi, 419.
8 Rich, A. R.: *Bull. Johns Hopkins Hosp.*, 1923, xxxiv, 321.
9 Idem: Ibid., 1925, xxxvi, 4.
10 Makino, J.: *Ziegl. Beitr.*, 1924, lxxii, 808.
11 Van den Bergh, H., and Snapper, I.: *Berl. Woch.*, 1915, ii, 1081.
12 Rich, A. R., and Reinhoff, W. F.: *Bull. Johns Hopkins Hosp.*, 1925, xxxvi, 431.
13 Virchow, R.: *Arch. f. Path. Anat. u. Physiol.*, 1847, i, 379.
14 Rich, A. R. and Burnstead, J.: *Bull. Johns Hopkins Hosp.*, 1925, xxxvi, 437.
15 Lepehne, G.: *Folia Haematol.*, 1930, xxxix, 277.
16 Rosenthal, F.: *Ergebn. d. inn. Med. u. Kinderh.*, 1928, xxxiii, 63.
17 Aschoff, L.: *Lectures on Pathology*. 1924. Hoeber, New York.
18 Cappell, D. F.: *Journ. of Path. and Bact.*, 1929, xxxii, 529; *Glasgow Medical Journal*, 1930, cxiv, 209.
19 McNee, J. W.: *Journ. of Path. and Bact.*, 1914, xviii, 325.
20 Rich, A. R.: *Bull. Johns Hopkins Hosp.*, 1924, xxxv, 415.
21 Idem: Ibid., 1930, xlvii, 338.
22 Schiff, L.: *Arch. Int. Med.*, 1927, xl, 860.
23 Adler, A., and Strauss, L.: *Klin. Woch.*, 1922, i, 2285.
24 Thannhauser, S. J., and Andersen, E.: *Deut. Arch. f. klin. Med.*, 1921, cxxxvii, 179.
25 Harrop, G. A., and Barron, E. S. G.: *Trans. Assoc. Amer. Phys.*, 1929, xliv, 143.
26 Meulengracht, E.: *Deut. Arch. f. klin. Med.*, 1920, cxxxii, 265.
27 Bernheim, A.: *Journ. Amer. Med. Assoc.*, 1924, lxxxii, 291.
28 Murphy, W. P.: *Arch. Int. Med.*, 1926, xxxvii, 797.
29 Gotsky and Isaac: *Folia Haematol.*, 1913, xvii, 128.
30 Hess, A. F.: *Amer. Journ. Dis. Child.*, 1912, iii, 304.
31 Gänsslen, M., Zipperlen, E., and Schüz, E.: *Deut. Arch. f. klin. Med.*, Leipzig, 1925, cxlvi, 1.
32 Creed, E. ff.: Personal communication—about to be published.
33 Idem: Ibid.
34 Krumbhaar, E. B.: *Cowdry's Special Cytology*, p. 285, 1928. Hoeber, New York.
35 Vallery-Radot, P., and L'Heritier: *Comp. Rend. Soc. de Biol.*, 1919, lxxii, 195.
36 Beer, E.: *Trans. Amer. Surg. Assoc.*, 1928, xlvi, 15.
37 Weinert, A.: *Zentralbl. f. Chir.*, 1927, iii, 3076.
38 Campbell, J. M. H., and Warner, E. C.: *Quart. Journ. Med.*, 1926, xix, 359.
39 Baker, S. L., and Dodds, E. C.: *Brit. Journ. Exp. Path.*, 1925, vi, 247.
40 Gamna, C.: *Haematologica*, 1923, iv, 129.
41 Gandy, C.: *Bull. et Mém. Soc. Anat. de Paris*, 1905, vii, 872.
42 Gibson, A. G.: *Quart. Journ. Med.*, 1913-14, vii, 153.
43 McNee, J. W.: *Glasgow Medical Journal*, 1929, cxi, 65, 193, and 288.
44 Saleeby: *Amer. Journ. Path.*, 1925, i, 69.
45 Brannon, Dorsey: *Bull. Johns Hopkins Hosp.*, 1927, xli, 104.
46 Rich, A. R.: Quoted by Brannon, 46.
47 Peabody, F. W.: *Amer. Journ. Path.*, 1927, iii, 179.
48 Zadek, I.: *Zeit. f. klin. Med.*, 1922, xcv, 66.
49 Fairley, N. H., and Billimoria, H. S.: *Ind. Journ. Med. Res.*, 1929, xvi, 831.
50 Creed, E. ff.: Private communication—to be published.
51 Paschkis, Karl: *Wien. klin. Woch.*, 1930, xliii, 166.

A Lecture

ON

SOME SURGICAL ASPECTS OF FAULTY NUTRITION*

BY

ROBERT McCARRISON, C.I.E., M.D., D.Sc., LL.D., F.R.C.P.

COLONEL, INDIAN MEDICAL SERVICE; HONORARY PHYSICIAN TO THE KING; DIRECTOR, NUTRITIONAL RESEARCH, INDIAN RESEARCH FUND ASSOCIATION

The laboratories of the Indian Research Fund Association, devoted to the study of diseases associated with faulty nutrition, are located at Coonoor in the Blue Mountains (Nilgiris) of Southern India, 6,000 feet above sea-level. Their location is fortunate, for the temperature is equable, never very hot or very cold: the mean winter temperature rarely falls below 50° F., the mean summer temperature rarely reaches 80°. A good deal of rain falls in these hills, Coonoor coming within the range of both the south-western and the north-eastern monsoon: the former brings with it only occasional heavy showers, while the latter may involve us in heavy rainfall during November, December, and January. But it is rare that a day passes without some hours of bright sunshine and clear skies. Conditions are such that no elaborate buildings are required for the animals. Indeed, I have been content with corrugated-iron sheds, roofed with the red tiles of the country, and having floors tiled, sloped, and adequately drained. I am fortunate also in having a large staff of animal attendants, who are now highly skilled in their work. In these favourable circumstances it is possible to ensure ideal conditions of hygiene and exposure of the animals to sunshine practically every day the whole year round. A simple but adequate means of sterilizing the animal cages is adopted, and the hose-pipe and creosol solution are used freely on the tiled floors. The walls are whitewashed frequently. The test of cleanliness is a simple but severe one. In an animal room of some 30 by 15 feet there may be as many as 500 rats. Should the visitor be made aware of their presence by his sense of smell then there is something wrong with the sanitation. I may add that he rarely is.

* The first of two lectures on experimental research at the Pasteur Institute, Coonoor, S. India, delivered before the Royal College of Surgeons of England.

FREEDOM OF WELL-FED ANIMALS FROM DISEASE

In these conditions there live some 1,000 stock albino rats—the source from which the large numbers of young animals required for my work are obtained. For this work I use on the average 1,100 animals a year. The pairs are kept in roomy, netted-wire cages, screened and straw-filled, in which they find the peace and comfort necessary for fruitful breeding. As a rule, five or six litters are taken from each pair, and the older animals are thinned out at the age of 2 years—a life span said to correspond approximately to the first 40 to 50 years of life in man. The average number in each litter is eight, but litters of twelve are frequent, and those of fifteen are not uncommon. The mothers invariably rear the whole of their young.

This stock is fed on a diet similar to that eaten by certain peoples of Northern India, among whom some of the finest physical specimens of mankind are to be found. The diet consists of whole-wheat flour, unleavened bread (*chapattis*) lightly smeared with fresh butter, sprouted Bengal *gram* (legume), fresh raw carrots and cabbage *ad libitum*, unboiled whole milk, a small ration of raw meat with bones once a week, and abundance of water, both for drinking and for washing purposes.

The point of these somewhat lengthy, but necessary, details is this: during the past two and a quarter years there has been no case of illness in this "universe" of albino rats, no deaths from natural causes in the adult stock, and, but for a few accidental deaths, no infantile mortality. During this period I have myself performed complete post-mortem examinations on 1,189

of these rats, ranging in age from the newborn to 2 years. In none have I encountered any macroscopical evidence of disease, with the exception of an occasional cyst in the liver, containing tapeworm larvae. How the animals became infected with tapeworm I do not know, unless it be from the straw bedding which they nibble. Both clinically and at post-mortem examination this stock has been shown to be remarkably free from disease. It may be that some of them have cryptic disease of one kind or another, but, if so, I have failed to find either clinical or macroscopical evidence of it. Disease and death have been excluded, almost completely, by minute attention to three environmental conditions: cleanliness, comfort, and food.

HIGH INCIDENCE OF DISEASE IN ILL-FED ANIMALS

I wish now to turn to my experimentation rooms. Here are the same corrugated-iron huts, the same cages, the same scrupulous cleanliness, if anything more scrupulous than in my stock animal houses; for here there are attendants, armed with forceps and crumb-tray, who pass from one cage to another removing faeces which may occasionally adhere to the half-inch meshes of the screens on which the animals live. There is no coprophagy; it is not allowed. Nor do we meet with the phenomenon of "refection." Here the animals are exposed in the same way to the sun's rays. But they live in separate cages, as do the controls for each experiment—isolated from their fellows; they are thus less contented than their more fortunate kith and kin in the stock animal rooms, and they are more exposed to the effects of chill, since they cannot be given straw bedding, though each evening they are given bedding of clean cotton-waste. The main regard in which they differ from the stock animals is in their food, which is always faulty in some way or another. Further, as my business is to learn, as far as I can, how the foods eaten by the people of India are related to disease, synthetic diets are used comparatively rarely, and then only for special purposes. The materials entering into the various faulty dietaries are usually those in use by the people of India; sometimes actual Indian dietaries are used.

During the last two and a quarter years I have examined 2,243 of these improperly fed rats at post-mortem examination—that is to say, during the same period in which I failed to find disease in the universe of stock rats. The following are the morbid states I have encountered:

Lung diseases: pneumonia, broncho-pneumonia, bronchiectasis, pyothorax, pleurisy, haemothorax.
Diseases of the nose and accessory sinuses: sinusitis.
Diseases of the ear: otitis media or pus in the middle ear.
Diseases of the upper respiratory passages: adenoid growths.
Diseases of the eye: conjunctivitis, corneal ulceration, keratomalacia, panophthalmitis.
Gastro-intestinal diseases: dilated stomach, gastric ulcer, epithelial new growths in the stomach, cancer of the stomach (in two cases only), duodenitis, enteritis, gastro-intestinal dystrophy, stasis.
Diseases of the urinary tract: pyonephrosis, hydronephrosis, pyelitis, renal calculus, ureteral calculus, dilated ureters, vesical calculus, cystitis, incrusted cystitis.
Diseases of the reproductive system: inflammation of the uterus, ovaritis, death of the foetus *in utero*, premature birth, uterine haemorrhage, "hydrops testis."
Diseases of the skin: loss of hair, dermatitis, abscesses, gangrene of the tail, gangrene of the feet, subcutaneous oedema.
Diseases of the blood: anaemia, a "pernicious" type of anaemia, *Bartonella muris* anaemia.
Diseases of lymph and other glands: cysts in the submaxillary glands and accessory glands in the base of the tongue, abscesses in the same, and occasionally also in the inguinal glands, enlarged mesenteric, bronchial, and other lymph glands.
Diseases of the endocrine system: lymphadenoid goitre, enlarged adrenal glands, atrophy of the thymus, and, very occasionally, haemorrhage into the pancreas.
Diseases of the nervous system: polyneuritis.
Diseases of the heart: cardiac atrophy, occasionally cardiac hypertrophy, myocarditis, pericarditis, and hydropericardium.
Oedema.

Not infrequently animals are found to be suffering from more than one of these diseases.

I say nothing of diseases of the bones and teeth, since the diets were not specially designed for their production, and the practice of exposing the animals to sunlight—a practice followed because the average Indian is daily so exposed—probably compensated for any lack of vitamin D in the diets. But mention might be made of crooked spines and distorted vertebrae, and of imperfect teeth, which are encountered not infrequently. The list I have given includes only those morbid states which I have myself seen (there may have been, and no doubt were, others which I failed to see); it is a list prepared from the post-mortem records of the 2,243 imperfectly fed animals.

Here, then, is an experiment on a large scale extending over a period of two and a quarter years. On the one side there is, as controls, a community of hygienically housed rats, fed on a well-balanced diet composed of natural foodstuffs—whole-wheat, pulses, raw milk, butter, fresh vegetables, and fresh meat with fat and bones occasionally, so combined as to provide in proper amount and proportion all elements and complexes necessary for normal nutrition. On the other, there is a community of rats, also hygienically housed, but fed on ill-balanced diets composed mainly of cereal grains or cereal products and vegetable fats with little or no milk, butter, and fresh vegetables. The contrast between these two communities is remarkable; and I claim for this experiment that it proves conclusively that one-sided diets which are disproportionately rich in cereals and poor in animal fats, milk, and *fresh* vegetables are capable of inducing in albino rats a large proportion of the diseases included in our calendar of human ailments. I may add that of all the faulty diets I have used that composed of white bread, margarine, tea, sugar, jam, preserved meat, and scanty overcooked vegetables—a diet in common use by many people in this country—proved to be one of the worst, and most likely to be associated in rats with many of the morbid states I have mentioned, especially diseases of the lungs and of the gastro-intestinal tract.

Rats are not the only animals I use; guinea-pigs, rabbits, pigeons, and monkeys are also employed. In them I have found many of the above-mentioned diseases, and some others besides. Of the latter I may mention the following: prescorbutic states, scurvy, and duodenal ulcer in guinea-pigs, hyperplastic goitre in rabbits, epithelioma contagiosum, polyneuritis, and true beri-beri in pigeons, and ulcerative colitis in monkeys. Two conditions I have not, so far, encountered: gall-stones, observed by Fujimaki (1926), de Langen (1929), and others; and cataract, observed by Eckstein and Szily (1924).

In every species—pigeons, rats, guinea-pigs, rabbits, and monkeys—I have found the same thing: properly fed animals remain remarkably free from disease, improperly fed animals are remarkably subject to it. It is reasonable, therefore, to assume that the human species is no exception to this rule, and that many of the ailments to which man is erroneously supposed to be heir are the outcome of his improper feeding. Some may hold that it is not possible directly to translate to human experience the results of an experiment such as that just described. This may be true, if we seek to do so too rigidly and fail to take sufficient count of other environmental factors to which human beings may be exposed. But, in general, the results of an experiment of this kind do, in my opinion, apply to man, and point the way to a solution of many etiological problems connected with his physical infirmities.

DEFICIENCY IN VITAMIN A

In the above list of diseases there are many of interest to the surgeon. Sinusitis, adenoid growths, otitis media, gastro-duodenal ulcer, gynaecological ailments, certain types of goitre, and urinary calculus are some of them. At first sight it would appear that morbid states so dissimilar as adenoids and stone in the bladder had nothing in common, yet etiologically they are not so far apart. All these surgical conditions were found to have this in common: they occurred in animals whose ill-balanced diets contained little or no vitamin A bearing food materials, such as raw milk, butter, cod-liver oil, carrots, and fresh green vegetables. In my hands these food materials, when suitably combined, have protected my animals from these diseases, and I do not doubt that in the hands of the surgeon they will go far to protect his human patients from them and facilitate their cure and non-recurrence after operation. I lay stress on the food materials themselves rather than on any particular ingredient of them, or any particular quality possessed by them, believing, as I do, that in Nature's laboratory all elements and complexes needed for normal nutrition are combined in a way which we cannot wholly achieve, and that the health-giving properties of food are largely dependent on this combination. For my own part I have been able to devise no synthetic diet which can equal in these properties a mixture of natural food materials such as that on which I feed my stock rats and on which some of the finest physical specimens of mankind are reared. Nevertheless, a principal fault of the diets I have used, and one which is in considerable part responsible for the surgical diseases I have mentioned, is insufficiency of the substance or quality which we speak of nowadays as vitamin A. The effects on the organs and tissues of the body of the insufficient use of vitamin A bearing foods have thus a particular interest for the surgeon.

[Here followed a lantern slide demonstration in which the lecturer showed the typical keratinization of epithelia, the concourse of lymph cells, the secondary inflammatory changes, the ulceration of, and epithelial new growths in, the stomach, and the lymphadenoid goitre occurring in rats fed on diets containing an insufficiency of vitamin A bearing ingredients.]

The sites in which these changes have so far been found in experimental animals are the nares, larynx, trachea, bronchi, submaxillary glands, parotid gland, and the accessory salivary glands of the tongue and pharynx; the pancreatic duct, bladder, ureter, and pelvis of the kidney; the uterus and oviduct; the epididymis, prostate, and seminal vesicles; the conjunctiva, Meibomian gland ducts, cornea, lacrymal gland, Harderian gland, and the extra-orbital (lacrymal) gland; the thymus (Wolbeck and Howe, 1925). To this list I must myself add the thyroid gland. "The distinctive or peculiar gross changes are those due to mechanical factors sequential to the formation and retention of desquamated, keratinized epithelial cells" (Wolbeck and Howe, 1925). Thus cysts, bronchiectasis, hydronephrosis, dilatation of the bladder and ureters may be produced by blockage of ducts or other passages.

These changes occur more readily, and within a shorter time, in young than in older animals—a thing to be expected in the growing animal. They are focal in distribution, and may be confined to narrow or to wide areas, to a few tissues or to many. They vary in their location in different species of animals and in different individuals of the same species. I have, for instance, found the adenoid-like growths in the upper respiratory tract in rats to all appearances normal except for subnormal growth. They are best seen and more widespread in animals fed on synthetic diets devoid of vitamin A; but since man's food is rarely or never wholly lacking in this factor it is of importance to realize that they occur also in animals fed on human dietaries which are by no means devoid of it, though containing it in insufficient quantity. It seems probable that these changes are helped in their occurrence by the existence of other food faults in the diet, such, for instance, as deficiency of suitable protein and mineral elements, and by the condition of semi-starvation into which the animals fall. It seems probable also that other environmental conditions, such as climate, altitude, humidity, may favour or hinder their occurrence. Thus it is universally agreed that the changes in the eye and its neighbourhood are, in rats, the most frequent; but they are not so in the climate of Coonoor; indeed, the eye is often not affected when other tissues are. I mention these matters to illustrate the interplay between nutrition and other environmental conditions (climatic and bacterial) in giving rise to the final morbid state. The worn tyre may travel far along the smooth-surfaced road before encountering a flint; its course along the flinty byway is less secure. So it is with the epithelial treads of the body surfaces when deteriorated by faulty nutrition.

The varying occurrence and location of the changes due to vitamin A deficiency are among the most interesting things about them. Thus in monkeys fed on a diet said to be complete in other regards, but lacking a sufficiency of vitamin A, eye changes, sinusitis, and mastoiditis, so common in rats, are, as Tilden and Miller (1930) have lately shown, conspicuous by their rarity. Twelve years ago (1919) I demonstrated that the colon was of all organs in monkeys the most sensitive to faulty nutrition; and the recent work of Tilden and Miller, while confirming this observation, re-emphasizes the importance of vitamin A deficiency in causing the ulcerative colitis which is so conspicuous a feature in these animals. The monkey's colon is also very sensitive to deficiency of other vitamins (McCarrison, 1919), particularly of vitamin C, "which causes a condition varying from local congestion and thickening of the mucous membrane to one indistinguishable from ulcerating and sloughing dysentery" (Mackie and Chitre, 1928).

In some of these respects man resembles the rat more than the monkey. Thus he is very susceptible to the eye changes resulting from insufficiency of vitamin A bearing foodstuffs in his diet, if one may judge by the prevalence of keratomalacia in the Madras Presidency, and by its amenability to treatment by cod-liver oil (Wright). But I suspect that he resembles the monkey in the sensitiveness of his colon to food deficiency; the number of cases of ulcerative colitis of "unknown" cause (Menon, 1930) occurring in India is sufficient to justify this suspicion. But however the changes vary, either as to extent or location, they are always to be found in animals of all species so far examined—rats, guinea-pigs, pigeons, fowls, and monkeys—and in man himself. Reference has already been made to their occurrence in the eye, and its neighbouring tissues, in Madrassis, and to its proven association with the specific deficiency. But there are few post-mortem studies of pure vitamin A deficiency in man. Fortunately there is one: I take it from a paper by Wolbeck and Howe (1925):

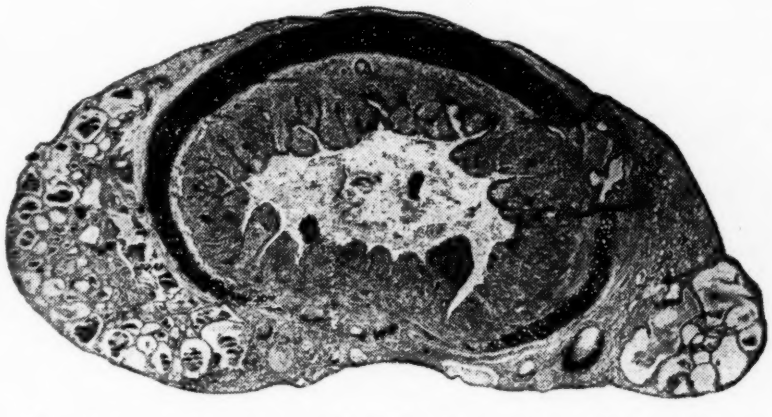
"*Vitamin A Deficiency in the Human.*—There has been but one pathological description of a fatal human case (Wilson and du Bois). This post-mortem, done in the pathological service of one of us at the Children's Hospital, is adequately recorded. We have recently re-studied the tissues and can add nothing of importance. Keratinization of the epithelium of the renal pelvis and large size of Hassall's corpuscles in the thymus were overlooked. The keratinization of the pancreatic ducts is more striking than any seen by us in the pancreas of rats. In respect to the keratinizing changes in the lungs, uterus, submaxillary gland ducts, and thymus, the picture was identical with that in our experimental rats.

The order of changes in the human case was somewhat different, in that the salivary glands showed only slight changes. The peculiar swollen epithelial cells with nuclear inclusion bodies in the ducts of the parotid and submaxillary glands are unlike any changes seen in rats. The lacrymal gland showed only slight changes and no keratinization. The eyes were not removed for study.

"The importance of this human case is that it did show the epithelial changes which we have produced in rats, and, therefore, contributes irrefutable evidence for an important part of our thesis to the effect that vitamin A deficiency affects epithelial tissues in a specific manner."

The testimony of these experienced observers is of the highest value, and leaves no room for doubt that the tissue changes occurring in the lower animals, consequent on the *insufficient* supply of vitamin A bearing foodstuffs in the diet, occur also in man. I again emphasize the word "insufficient," since, in my own experience, and in that of Tilden and Miller (1930), in monkeys the diets associated with them are not necessarily devoid of vitamin A, though always they are poor in this factor.

These changes are independent of infection, though infection is often superimposed upon them. Indeed, it is because of them that infection becomes possible, since they occur for the most part in "outside" coverings of the body; the respiratory passages, the urinary tract, the reproductive tract, the conjunctiva, the nasal passages, the ear, and the ducts of organs. They are breaches in the walls of the body's defences, through which the invading microbe may enter. In this sense vitamin A is "anti-infective"; but the "anti-infective" quality is shared with other vitamins—C, B, and D—though exhibited by them in other ways.



Adenoid growths in upper part of trachea of rat fed on a diet containing an insufficiency of vitamin A bearing ingredients.

Two points of interest to the surgeon remain to be mentioned: (1) If rats, fed on a diet deficient in vitamin A, be artificially infected with a bacterium, such as the Breslau bacillus (paratyphoid), they usually die from the resultant infection. But some may live, and in them the infection persists in the lymph glands "for a very long time after the general infection has been overcome" (Lassen, 1930). It seems to me probable that chronic enlargement of lymph glands in childhood, due usually to infection of one kind or another, may often be due to such persistence of infection as a result of a vitamin A deficient diet. Further, it seems probable that the focal breakdown of the tissue defences induced by this deficiency may be concerned in the causation of those "septic foci" about which so much is heard nowadays. (2) I have spoken above of breaches in the walls of defence against bacterial invasion consequent on the use of vitamin A deficient diets, and I have mentioned that other vitamins may also exercise an anti-infective action, though exhibiting it in a different way. This way may not need the breaching of the walls, but their scaling. I take the following from an unpublished manuscript which Dr. Lloyd Arnold of the Department of Pathology and Bacteriology, Chicago, has recently sent me:

"McCarrison has repeatedly called attention to the early appearance of digestive disturbances in vitamin deficiency studies. The pathological examination of the dead animals following avitaminosis experiments shows evidence of tissue changes due to infections of various kinds. We have found that one of the first demonstrable changes in avitaminosis is an alteration in the distribution of the bacterial life within the lumen of the intestinal tract. The bacteria ingested by the mouth are not destroyed in the usual manner, but remain viable for many hours within the contents of the whole length of the small intestine. The mixed bacterial flora of the large intestine ascend into the upper levels of the small intestine. There is a gradual and progressive loss of the power of the body surface to control the microbic life existing in contact with it. These findings have been constant, and hold for vitamin A, B, and D deficiencies. By the time the adult animals show a loss in body weight, or the young animals show a stationary weight-curve, there is evidence of bacterial invasion of the mucosa of certain surfaces. These latter observations have been made by numerous investigators. We attribute the early inflammatory changes in the lining membranes of the eye, mouth, throat, alimentary tract, etc., to the loss of power of these body surface coverings to regulate the bacterial flora in contact with their cells. This precedes evidence of invasion of the membranes by bacteria."

This statement, so amply demonstrated by Dr. Lloyd Arnold's investigations, calls to mind the contentions of Sir Arbuthnot Lane and Dr. Nathan Mutch in regard to infection of the upper reaches of the intestine consequent on chronic gastro-intestinal stasis: a condition which, as my own researches (1921) have shown, may be due to the consumption of faulty food from the "first bottle" onwards through life.

The function of vitamin A, so far as it is known at present, is thus to maintain the functional integrity of the cells covering body surfaces, thereby preventing invasion of the organism by microbic agents.

Here, however, I must re-emphasize the position, which I reached more than ten years ago and which all my subsequent work has but strengthened, that, whatever the specific function of any vitamin may be, vitamins are but links in the chain of essential substances requisite for the maintenance and harmonious regulation of the chemical processes in the tissues, and their action must be considered in connexion with metabolism as a whole—that is, in relation to balance of food ingredients in general, to organs of digestion and assimilation, and to endocrine regulation of metabolism. Their deficiency, like that of the other elements and complexes necessary for normal nutrition, leads to depreciation of cellular function; depreciation of cellular function is the foundation upon which disease is built (McCarrison, 1921).

Surgical Diseases which may be Associated with Faulty Nutrition

I find I have left myself little time to discuss specific diseases of surgical interest which may be associated with faulty nutrition. Mention may, however, be made of a few, illustrative of the several departments of surgery, but excluding the ophthalmic surgeon, to whose department some reference has already been made.

Adenoids

In the lantern slide demonstration I showed examples of adenoid growths in the trachea. (See Fig.) In rats these growths were the result of faulty feeding. It is no far cry from the trachea to the nasopharynx, where changes similar to those in the trachea of rats are so

commonly found in children. And perhaps I might have found adenoids there also had my serial sections extended up to that situation. In work such as this it is constantly happening that one cannot do everything one wants to do, or that in looking for one thing one overlooks another. So whether or not rats do get "adenoids" as the surgeon understands the term, I do not know, but they certainly get "adenoid-like growths" in a region not far removed from the nasopharynx; and they get them because of faulty nutrition. And if in the trachea of rats, why not in the nasopharynx of children? The more so since Williamson and Pearse, and more recently Wollard (1931), have shown that the pharyngeal entoderm is an anatomical entity which embraces the lymphatic tissue of the nasopharynx and trachea. Evidence provided by the racial distribution of adenoids is not lacking to show that their occurrence may be related to faulty food. Thus Van der Bogert (1927) reports that Labrador Eskimos and those of Baffin Island who have been in contact with Western civilization, and whose food has changed accordingly, develop adenoids, whilst Polar Eskimos, whose diet has remained unchanged for centuries, do not. My own experience in rats would lead me to expect such a sequence of events.

Otitis Media

In rats one of the most common consequences of faulty food deficient in vitamin A is pus in the middle ear; its incidence may reach 60 or even 70 per cent. It is a condition of great frequency among school children in England and Wales, and, although its occurrence, as a sequel of certain diseases of childhood, is well known, the probable nutritional factor in its causation does not appear to me to have received the consideration it deserves. According to Hastings (1925) a high proportion of all cases occur before the fifth year, and many before the first birthday. In 1923 no fewer than 46,000 children had ear trouble; while 90 per cent. of deafness in adults is due to preventable causes in childhood. Ponfick reported that of 100 necropsies in children under 4, who died from various diseases, 91 showed evidence of middle-ear disease, and in only ten of these was the trouble recognized during life. The causes giving rise to middle-ear disease interact with one another: they are squalid poverty—with its accompaniment of malnutrition—neglected catarrh, tonsils and adenoids, mouth-breathing, and the after-effects of measles, scarlet fever, and diphtheria. My rats do not suffer from the three last; but my experience in these animals leads me to believe that the insufficient supply of vitamin A bearing foods may be responsible for middle-ear disease in children to an extent much greater than is generally believed.

Gastro-Duodenal Ulcer

Twelve years ago (1919) I recorded the occurrence of this condition in guinea-pigs fed on a scorbutic diet of crushed oats and autoclaved milk. Recently I have repeated this experiment with the same result; and in this later experience I have found duodenal ulceration at all stages of the process up to perforation (in one case), the resulting abscess being localized. Magee, Anderson, and McCallum (1929) have observed similar conditions in calves fed on food deficient in certain essentials. Gastric and duodenal ulcer are extremely common in Southern India, especially in South Travancore. The suggestion was made to me by Lieut.-Colonel E. W. C. Bradfield, I.M.S., late superintendent of the General Hospital, Madras, and by Dr. T. Somervell of the South Travancore Medical Mission, that the dietaries of the poorer classes, among whom these conditions were most common, might be concerned in their causation; an experiment was accordingly undertaken to put this view to the test.

Albino rats were used; and the experiment was continued for 675 days. Two diets were employed: one, resembling that eaten by the poorer class Madrassi, and containing rice, red pepper (chillies), tamarind, a little fish, and *conjee* (rice water); the other, resembling that of the poorer class Travancorian, and consisting largely of tapioca root, with rice, a little fish, red pepper, and rice water. Both these diets were very deficient, not only in vitamins of the A, B, and C classes, but in other regards also. The diets were prepared and cooked in the same way as by the people using them. It so happened that about the time this experiment matured I had occasion to examine at post-mortem some hundreds of well-fed stock rats who had lived through the same period of 675 days. In none of these was gastric or duodenal ulcer found. Among the rats fed on the Madrassi diet the incidence of gastric ulcer was 11.1 per cent., while the duodenum showed no signs of ulceration; among those fed on the Travancore diet, 27.7 per cent. had gastric ulcer, and in 11.1 per cent. of these the ulcers occurred both in the proximal (squamous) and in the distal (mucous) portion of the organ. No duodenal ulceration was found in animals fed on either diet, although in 11.1 per cent. of those fed on the Travancore diet a marked duodenitis was present. The limitation of the ulceration to the stomach in rats was the more remarkable because the Travancorian diet is especially associated in man with duodenal ulcer. A further point of difference between the two groups was that while in animals fed on the Madrassi diet the ulcers were limited to the squamous portion of the organ, in those fed on the Travancorian diet the ulcers occurred for the most part in the mucous portion.

Here, then, is unequivocal proof that two diets in use by certain people in India are capable of causing peptic ulcer in albino rats. The high incidence of this condition among the human users of these diets may therefore be definitely attributed to this cause. As to the mechanism of ulcer production—that is another matter; the one that concerns me, as an investigator in the service of the Indian people, is that two of the diets used by them do cause peptic ulcer, while a third, on which my stock rats are fed, does not. For them the moral is unmistakable.

The excellent results reported by Harris (1928) in the treatment of gastric and duodenal ulcer by vitamin-rich food are in conformity with the findings in this experiment.

Gynaecological Ailments

The health of the womb and its appendages is dependent in various specific ways on the quality of the food. It is one of the sites in which faulty nutrition implants its seal, as has been shown, not only in the lower animals, but in the human being. The ovary, also, and the oviducts, may be affected in a similar way; while changes brought about in the bony framework of the pelvis may, as is well known (Stoney, 1930), be a fruitful cause of stillbirth and maternal mortality in childbirth. Fertility, the course of pregnancy, labour, resistance to infection following labour, and lactation may all be affected adversely by defects in quality of the food. It is said that "nothing so predisposes to maternal death at confinement as an unhealthy womb" (Pearse and Williamson, 1931), and while imperfectly terminated pregnancies, aborted pregnancies, and other conditions may, and often are, the causes of this unhealth, faulty nutrition may also be concerned in it. Often I have seen deficiently fed rats that die in pregnancy or at term from causes dependent on their faulty nutrition, and often also rats that come to term only to die with five or six foetuses in their wombs. Some of the anaemias of pregnancy so common in India are dietetic in origin—as the recent work of Dr. Lucy Wills has so conclusively shown. I make no claim that in human beings faulty nutrition is invariably a factor in the production of the tragedy of maternal mortality in childbirth, however frequently it may be so in rats. But here, as in other departments of medicine, experience in rats has pointed

surely to means for the relief of suffering in mankind; and it might be well were we to accept this guidance more readily in regard to our women, and urge insistently that the mothers of our race be fed with knowledge and understanding.

Lymphadenoid Goitre and Graves's Disease

A lecture might, by itself, be devoted to this subject, so much is the health of the thyroid gland and its departures from health associated with perfect nutrition on the one hand, and with faulty nutrition on the other. Lymphadenoid goitre, originally described in man by Williamson and Pearse (1925), is "the hypertrophic reaction of a physiologically inefficient organ with which there occurs a preponderance of lymphocytic aggregates, fibrosis, and a peculiar atrophy of the parenchyma." I have produced it under experimental conditions in rats (McCarrison, 1927). In these animals the physiological inefficiency of the gland can be induced by faulty nutrition, but the exciting cause of the goitre is some positive factor which has so far escaped me. One cannot be sure when this type of goitre is going to occur; all that one can be certain of is that it surely will occur, in its own good time, provided the food is of a certain character. It is unrelated in its origin to iodine deficiency. I understand that it is now possible to diagnose this condition clinically in the human subject, and that thyroidectomy has been performed for its relief in not a few cases within recent years in London. Mention of its association with the use of foods deficient in vitamin A recalls the observation of Rabinowitch (1929) that a combination of relatively minute quantities of organic iodine, with a concentrated preparation of fat-soluble vitamins, causes as marked a lowering of the metabolic rate in Graves's disease as larger doses of iodine when not combined with these vitamins. Fraser and Cameron (1929) have made a similar observation, using small amounts of sodium iodide instead of organic iodine. More recently Abelin (1930) has demonstrated the great value of vitamin treatment in Graves's disease.

"The hyperthyroid condition," he writes in his recent book, "is one of the abnormal raising of the metabolic rate, together with a lowering of anabolic processes. This disorder of lowered activity of cells can be successfully combated through nutrition. Among other things, for this purpose, the co-operation of vitamins is necessary. The organ destruction in thyrotoxicosis is caused by a vitamin-poverty in the body. The need for vitamin supply is, therefore, increased in hyperthyroidism. Through plentiful use of vitamin-rich substances—cod-liver oil, egg-yolk, yeast, tomatoes, spinach, etc.—the great destruction of sugars has been reduced or almost completely overcome successfully in animal experiments."

Again, it has lately been shown, in my own laboratory, how important is the balance between fat-soluble vitamins and iodine in the diet. The administration of iodine to rats fed on diets deficient in these vitamins may actually cause goitre (McCarrison, 1930). We have found, also, that the maintenance of an adequate iodine content in the thyroid gland is largely influenced by the content of vitamin C in the food (Sankaran, 1931). Few organs of the body, indeed none with the exception of the suprarenals and thymus, are more profoundly affected by faulty nutrition than the thyroid gland, and few are more sensitive to this influence.

My second lecture will deal with the causation of urinary calculus.

THE TREATMENT OF DYSMENORRHOEA*

BY

B. VENN DUNN, M.D., F.R.C.S.ED.

Recent investigations have facilitated the treatment of dysmenorrhoea on a more rational basis than has been possible in the past. The old classification of dysmenorrhoea into spasmodic and congestive varieties may be discarded for several reasons. In the first place the terms are not relative; "spasmodic" denotes a disorder of function, whereas "congestive" implies a morbid anatomy. Secondly, the two forms cannot be easily differentiated; cases frequently occur each with a different morbid anatomy, all with similar symptoms—those of spasmodic dysmenorrhoea. Thirdly, there is a danger of cases being labelled "spasmodic" without sufficient examination having been made. The importance of a complete investigation of every case of dysmenorrhoea cannot be too greatly stressed.

CLASSIFICATION

The following classification has been found of practical value in the investigation of cases:

1. Psychological.
2. Endocrine.
3. Mechanical.
4. Gross pathological.

The treatment of the patient will vary according to the category to which the case belongs.

THE PSYCHOLOGICAL TYPE

This applies to those patients, often in their teens, but sometimes much older, who have had an unhealthy psychological upbringing. They may, from their earliest years, have had their simplest physiological acts associated with feelings of shame and repugnance. Such an association is bound to make a child magnify any slight discomfort experienced at a time when she is undergoing rapid mental development and in a region she has been told is so important as to be unmentionable. Perhaps, also, too much may have been made of any slight disability the child may have felt in the early months of puberty. The overanxious parent insists on the child lying up when it is more than ever necessary that the circulation in the pelvic area should be encouraged. Gradually a habit of pain becomes formed, the nerve paths for pain become especially sensitive from much use, and, unless a new hygiene is quickly enforced, dysmenorrhoea may continue for the rest of the sexual life.

The treatment of this type of case varies with the age of the patient. The great hope is to catch her young, and before the habit of pain is too well formed. Then we must be ready to spend a good deal of time, first with the patient's parents (either or both) and then with the patient herself. The matter must be talked out. These are the cases which do well under the regime recommended by the Medical Women's Federation, whose leaflet, "Advice regarding menstruation," consists of an exhortation to "business as usual" during the menstrual period. It insists on the necessity of the daily warm bath throughout; it advocates an adequate amount of exercise, while it deprecates "long expeditions and cycle rides or matches or competitions in which there is a strong incentive to exhaust the reserves of strength." The use of a system of physical exercises such as that published a few years ago by Dr. Harold Dearden, under the title of "Exercise and the will," is extremely valuable for these girls. The older patients with this type of dysmenorrhoea are a trouble to their medical advisers as well as a nuisance to themselves. The only people who profit by them are the vendors of patent medicines and the retailers of gin.

*Abstract of a paper read before the Torquay Medical Society on March 19th.

A woman, aged 40, recently presented herself. She had always suffered from violent pain at the periods. There was no apparent abnormality in the pelvis. She had commenced life with a father who idolized her, and a mother who thought she was a nuisance, because the child interfered with her hunting. The sequence of an expensive education, marriage into the Army, childbirth (the child did not survive), colonizing in Africa, and eventually divorce, had failed to subdue the periodic pain. Month by month she retired to bed and subsisted on gin and hot water. After many conversations and much encouragement she is at last beginning to pull herself together and live a more normal life.

ENDOCRINE FACTORS

When we come to discuss the endocrine causes of dysmenorrhoea, the possibilities are numerous, and it is only by keeping strictly to the facts that it is possible to correlate certain definite clinical types with glandular dysfunction. The modern theories of menstruation have recently been well ventilated by Cannon,[1] James Young,[2] Teacher,[3] and others, and it is necessary here to make only a brief survey. The alpha hormone of the anterior pituitary gland stimulates the production of oestrin by the ovary, which in its turn causes congestion of the uterus. This congestion is probably the forerunner of that type of menstruation which occurs without ovulation ; it also assists in the more normal type which follows ovulation. The beta hormone of the anterior pituitary stimulates the formation in the ovary of lutein tissue, which governs the preparation in the uterus for nidation and gestation of the fertilized ovum. If fertilization fails to occur the scaffolding is cast off. It is the rhythmic variation in the supply of these hormones which results in menstruation.

Overaction of the anterior pituitary, overproduction of the alpha hormone, and overproduction of oestrin by the ovary may be responsible for that type of dysmenorrhoea which occurs in early developed young women who started to menstruate early and copiously, and who have well-marked secondary sex characters. This class of patient benefits mostly by active elimination during the few days immediately preceding the period. In addition to the exercises and baths recommended in the last section, the administration of magnesium sulphate first thing in the morning for three days prior to the expected period is often productive of very favourable results.

The reverse type to this is the under-developed late-menstruating girl whose flow is scanty and whose interval is prolonged. She has a flat chest and narrow hips, She is good at games and something of a tomboy. There is, we may reasonably suppose, inadequacy of the alpha hormone and shortage of oestrin. We should expect benefit to accrue from the administration of anterior pituitary extract or from oestrin. Three years ago I gave sistomensin in a series of twelve cases of dysmenorrhoea. I was disappointed with the results. Only three out of the twelve showed any definite signs of improvement. I think that may have been because the cases were not definitely selected. Dr. James Young, in a personal communication a few weeks ago, said :

> "With regard to dysmenorrhoea I have been employing sistomensin in the form of two tablets daily for the ten days preceding the onset of the period, and in addition one ampoule hypodermically twice weekly the week before the period. We now have a large number of successful cases so treated."

Interesting in this connexion is the work of Collip and Campbell[4] of Montreal. They have separated the alcoholic extracts of human placenta into three fractions, each having distinctive physiological properties. The second fraction represents 85 per cent. alcohol-soluble material present in the original extract but from which oestrin had been extracted with ether. They call the substance "emmenine," and with it they produced oestrus in immature rats. The action resembled that of the alpha hormone of the anterior pituitary. Applied to the treatment of dysmenorrhoea, twenty-six out of thirty-six cases are said to have been relieved. There has as yet been no opportunity of employing this substance, but the rationale of the treatment is good and its outlook distinctly hopeful in this type of case.

A third endocrine cause of dysmenorrhoea may rest in overaction of the beta hormone with increased lutein action in the ovary. This probably accounts for those cases of dysmenorrhoea described by Beckwith Whitehouse,[5] which he suggested were due to difficulty in disintegration of the surface layers of the endometrium. He believes that the transient exacerbations of pain which are so characteristic are due to the passage of abnormally large flakes of endometrium, and that what is usually called membranous dysmenorrhoea is really just an extreme form of the process which causes pain in the more ordinary cases. The treatment of this type, as in all cases of hyperfunction of the endocrine system, must depend either on drugs or on surgical intervention, and will be dealt with along with mechanically caused cases.

MECHANICAL CONSIDERATIONS

In this group I place cases in which the neuro-muscular mechanism of the uterus is at fault. Now the neuro-muscular mechanism of the uterus displays an interesting property, which has been designated "polarity"—a simple indication that there is a co-ordination of fundal contraction and cervical dilatation. The normal rhythmical contractions are increased in intensity during menstruation ; if, then, the cervix fails to follow the lead and dilate sufficiently, the uterus will be thrown into spasm. This is not the only instance in the body where young developing tissue suffers from antagonism in the co-ordination of the neuro-muscular function. An analogy is congenital hypertrophic stenosis, in which there is no actual stenosis of the pyloric canal, and yet the intense spasm of the pylorus refuses to allow the stomach contents to reach the duodenum. In many cases of dysmenorrhoea the uterus is abnormally small, and it has been found that the proportion of muscle to fibrous tissue is low. If, associated with this neuro-muscular deficiency, there is to the outflow from the canal a partial obstruction, due to extreme anteflexion, to contraction of the external os, or to abnormal contents such as blood clot or large shreds of decidua, it is not surprising that the uterus is thrown into painful spasm in its attempt to fulfil its physiological functions.

The difficulty of any cut-and-dried classification is that there is bound to be a certain amount of overlapping, and in this class there are many cases which will benefit from endocrine treatment. In particular, where the faulty mechanism can be associated with other symptoms of thyroid deficiency, I have found that the administration of thyroid in conjunction with other measures has brought about relief. In cases in which the cervix is conical in shape and the os unduly small, dilatation either alone or combined with a plastic operation is the method of choice. To be efficacious dilatation must be sufficient. The cervix should be dilated up to number 14. Further, the patient must be warned that the operation may have to be repeated in three months' time. When operation is refused or is inadvisable, or sometimes as a concomitant to operative treatment, atropine is of considerable value. Commencing two days before the expected onset of the period, 1/200 to 1/100 of a grain should be given three times a day. Symptoms of idiosyncrasy to belladonna must be watched for. The pharmacology of atropine is interesting. Applied to nerve-muscle preparations of the uterus, it increases muscle tone, decreases the amplitude of the contraction, but increases the rate.[6]

Atropine acts on the uterus in the same way that it acts on the intestine—namely, it arrests only certain abnormal violent forms of contraction without interrupting the path of nervous impulses from the spinal cord to the uterus.[7] It therefore aids normal uterine polarity by making the contraction of the fundus more smooth, and at the same time relaxing the spasm of the sphincter muscle at the internal os. In severe cases it is often advisable to combine the antispasmodic with an analgesic and a sedative in the following cachet: luminal 1/2 grain, pyramidon 5 grains, ext. hyoscyamus 1 grain.

In cases where these measures prove unavailing to arrest the complaint there are several others at our disposal. Subtotal hysterectomy must be mentioned only to be condemned as an admission of failure. The recent French work on resection of the presacral nerve is interesting. Binet,[8] in a report on thirty-two cases of pelvic pain, claims that relief is usually secured. He removes the whole of the tissue, including the sympathetic fibres lying between the common iliac arteries. He says it is "a simple operation, easy, and, above all, efficacious." In Germany, Blos[9] has treated dysmenorrhoea by the injection of alcohol. He believes that dysmenorrhoea is due to increased sensitivity of the ganglia governing the uterus. At each side of the cervix is injected 5 c.cm. of 70 per cent. alcohol, containing 5 per cent. novocain. He says that the treatment has given excellent results for ten years, with no harmful effects even on child-bearing.

Gross Pathological Conditions

Lastly, there are those cases of dysmenorrhoea which are due to some gross pathological condition. The lesion may be anything from a simple cervical erosion to generalized pelvic cellulitis or new growth. The age of the patient will give no indication whether the pain is due to some functional or endocrine derangement or to organic change. There is only one way in which a correct diagnosis can be made—by a thorough examination of the patient. If the patient is a young woman, often even if she is older, it is necessary to examine her under an anaesthetic. The lithotomy position, and a visual examination of the vaginal vault with speculum and terminal mirror, followed by a careful palpation of the uterus and adnexae, are the minimum necessities. The following case is of interest:

A young woman, aged 15, recently presented herself. She was remarkably developed for her age. The secondary sex characters were those of a well-developed woman. She complained of right iliac pain accompanying her periods; indeed, so definitely was the pain localized that her appendix had already been removed. She first menstruated at 11 years of age, her periods occurring every twenty-one days. The pain began the day before the period; it was spasmodic in character, lasted for two days, and then gradually subsided. On examination under an anaesthetic, the left ovary was found to be replaced by a cyst the size of a cricket ball, while the right ovary was enlarged and prolapsed into the pouch of Douglas. At the operation, the cyst was removed, and the right ovary (which was very congested and more than twice its normal size) was stitched into a pocket in the peritoneum. There has been no return of the disability. I quote this case to illustrate the absurdity of attempting to treat dysmenorrhoea from a symptomatic point of view. The patient had already been treated with an oestrin preparation, though it was quite obvious that she was sexually over-mature, and that endocrine treatment could do nothing but harm.

References

1. Cannon: *British Medical Journal*, August 9th, 1930, 201.
2. Young, James: Ibid., December 20th, 1930, 1031.
3. Teacher: Ibid., November 29th, 1930, 896.
4. Collip and Campbell: Ibid., December 27th, 1930, 1080.
5. Beckwith Whitehouse: *Edin. Med. Journ.*, 1927, xxxiv, 139.
6. Fleming, Amy: *Trans. Roy. Soc. Edin.*, lv, 524.
7. Cushny: *Text Book of Pharmacology*, p. 290.
8. Binet: *Bull. Soc. d'Obstet. et de Gynécol.*, October, 1930, 590.
9. Blos, D.: *Manch. med. Woch.*, 1929, lxxvi, 1173.

MINOR SURGERY OF INFANCY*

BY

DAVID LEVI, M.S., F.R.C.S.

ASSISTANT SURGEON TO THE INFANTS HOSPITAL, VINCENT SQUARE, LONDON; SURGICAL REGISTRAR AT THE ORTHOPAEDIC HOSPITAL

As we treat children until the age of 5 years in this hospital the following remarks are only applicable up to that time of life. There are many minor surgical conditions with which one is faced during the period of infancy. I have chosen a few of these conditions, and will describe a simple method of dealing with each.

Herniae

Hernia is very common in infancy. Large numbers of children are born with inguinal and umbilical herniae. The treatment of umbilical herniae has, in the past, usually been carried out by physicians. These learned gentlemen took great pride in strapping halfpennies, suitably covered with lint, over the protuberant umbilici

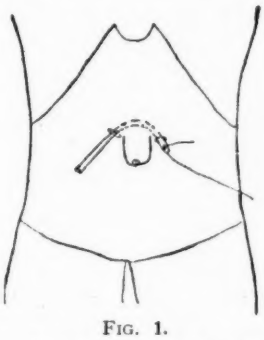


FIG. 1.

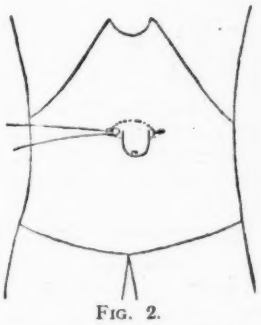


FIG. 2.

FIG. 1.—Aneurysm needle being passed subcutaneously round the neck of the hernia.

FIG. 2.—The ligature in place before it has been tied.

of the stream of infants constantly passing before them in the out-patients' department. Given patience, persistence, and perseverence, this method eventually leads to the disappearance of most umbilical herniae. I have recently ligated the neck of the sac of these umbilical herniae subcutaneously, with the result that the hernia is cured in five minutes instead of the more usual five months. The procedure is simple in the extreme. A local or general anaesthetic is administered and a small stab is made through the skin at the base of the hernia. A blunt aneurysm needle is passed through the stab wound, and, subcutaneously, round the neck of the sac. It is brought out at a diametrically opposite point on the skin through another stab incision. The needle is threaded with a piece of No. 2 catgut and is withdrawn. The needle is inserted through the original stab incision and worked round the base of the sac in the opposite direction, brought out at the second incision, and threaded with the remaining end of the catgut. When the needle is withdrawn a catgut loop surrounds the base of the hernial sac, which is then grasped and squeezed to make certain that it is empty. The ligature is tied. The stab wounds are so small that it is not necessary to stitch them, and they are sealed off with a dressing of Whitehead's varnish. I am indebted to Mr. Boyd for suggesting this method of dealing with these herniae, and I have successfully treated a number of infants by the technique described above.

Inguinal herniae in infants are treated by operative means. The operation for inguinal hernia in an infant, provided that the testicles have descended, is no more than a subcutaneous ligation of the neck of the sac of

* A lecture delivered to post-graduates at the Infants Hospital, Vincent Square, London.

the hernia. The operation is undertaken as soon as the hernia is diagnosed; the earlier the better. It is performed in the out-patients' department, and the infants are sent home afterwards. Before these infants are operated on, conditions tending to produce increased intra-abdominal tension are remedied. A phimosis or a pinhole meatus is rectified and allowed to heal before the herniotomy is attempted. A temperature, diarrhoea, or rash upon the skin contraindicates operation. The child is neither purged nor starved, but is given an anaesthetic two hours after its last feed. A small incision is made through the skin over the external abdominal ring of the affected side. The coverings of the cord are incised, the sac isolated, and the vas deferens separated from it. This latter procedure requires care, and the vas must not be touched with the forceps. It is often closely adherent to the posterior wall of the sac. When the sac has been isolated it is opened and a probe passed down it into the abdomen. The sac is then twisted, its neck ligated, and the redundant portion removed. The stump drops back from view. The skin incision is closed by means of two silkworm-gut sutures and the wound sealed with gauze and Whitehead's varnish. Only one side is operated on at a time if the child is to be treated as an out-patient.

HYDROCELES

Infants are subject to many types of hydrocele. But in so far as the injection treatment of this abnormality is concerned there are three types: the open hydrocele—that is, one which communicates with the abdomen and which therefore gets larger by night but tends to disappear when recumbency is assumed; the closed hydrocele—that is, one which does not communicate with the abdomen; and, lastly, the hydrocele associated with a hernia. The closed hydrocele is the only type suitable for injection treatment. The open hydrocele is not injected on account of the possibility of some of the injection fluid escaping into the abdominal cavity and producing adhesions there. The hydrocele associated with a hernia is dealt with when the herniotomy is performed. Hydroceles in infancy have very thin walls, and the vas deferens is very closely applied to the outside of the hydrocele. If an irritant is injected into the interior of a hydrocele with the object of producing a mild aseptic inflammation, it is not unreasonable to suppose that the inflammation might spread to the closely adjacent vas deferens and produce stenosis or stricture of it. It has therefore been my practice never to inject both hydroceles in bilateral examples of this condition. The procedure is simple. The apparatus consists of a 10 c.cm. syringe with a hypodermic needle, a sterile 1 c.cm. syringe, a sterile 5 per cent. solution of sodium morrhuate, and of swabs and iodine. The 1 c.cm. syringe is filled with sodium morrhuate and the needle attached to the 10 c.cm. syringe. The scrotum is painted with iodine and the needle plunged into the upper and front part of the hydrocele. The contained fluid is aspirated. The 10 c.cm. syringe is detached from the needle and the loaded 1 c.cm. syringe substituted. The sodium morrhuate is injected and the needle withdrawn. No anaesthetic is required, and the operation takes only a couple of minutes. The hydrocele disappears without discomfort or any other noxious effects.

MINOR DISORDERS OF THE FEET

When an infant commences to walk perhaps the most frequent fault found by its mother is that it turns in its toes. This is in itself not a bad sign. When an infant stands it does so on a broad base, with its feet widely separated. The arches of the foot are undeveloped and the toes are pressed firmly downwards on the ground. As the child discovers its balance it brings its feet nearer together, and eventually walks, placing one foot in front of the other. Its weight, which originally was transferred to the ground along the inside of the foot, now passes mainly through the outer side. The child who thus starts walking by stumping along soon develops a spring in its gait and rises on its toes as it takes a step. From the moment the toes are used in this way the internal longitudinal arch of the foot commences to develop.

The minor disorders of the feet in infants are a failure or delay either in the development of the longitudinal arch, the apposition of the feet, or in the presence of a hypermobile foot. When the development of the longitudinal arch is delayed the child walks flat-footed. In its unconscious attempt to throw its weight on the outer side of its feet, it turns in its toes. This in-toeing is a sign that the child is compensating for the tardiness of the development of the arches of its foot, and therefore this should be encouraged. A wedge of one-sixth of an inch should be inserted between the heel and the upper on the inner side of the shoes. The shoe itself should measure at least two sizes larger than the foot, should have a flexible sole, and must have a heel. Wedges and stiffening should not extend into the sole, for the object of treatment is to get the child to rise on its toes in walking and thus develop its longitudinal arch. A stiff sole not only prevents this but tends to throw the child's weight on to the inner border of its foot, thus defeating the objects of the treatment. Most patients react to these simple measures. In severe cases, a valgus insole may be required, together with re-educational exercises. The exercises must not take the form of a ritual to be performed for ten minutes before the child says its prayers each night, but must be directed towards altering a habit. The mental atmosphere created by a skilled masseuse is as important as the physical manifestations of her energies.

Delay in bringing the feet into apposition will result in the development of knock-knee. In these children there is usually an underlying rickety condition which must receive attention. If the knock-knee is mild in degree—that is, if the internal malleoli are one inch or less apart when the internal condyles of the femur are touching, and the legs are extended, then a one-sixth-inch wedge on the inner side of the heel should be prescribed. For more severe degrees of this condition splints suitably applied will usually remedy the fault.

Many infants have hypermobile feet, and this is a potential source of weakness. If an infant's foot can be dorsiflexed so that the dorsum of the foot touches the anterior aspect of its leg, then there will be delay in the development of the normal stance. These infants should have their feet splinted in inversion. A small malleable splint made of one of the light metals and covered is the measure we adopt here. The child should be watched during the period when it is learning to walk, so that supports may be ordered if required.

In older children a mild degree of shortening of the tendo Achillis will often produce a flat-footed gait. A normal foot can be dorsiflexed in the mid-line with the knee straight, so that a plumb-line dropped from the ball of the big toe will pass half an inch or more proximal to the plantar surface of the heel. To carry out this test the foot must be held absolutely median, and allowed neither to go into inversion nor into eversion. If the foot can only be flexed to the right angle there is a mild degree of shortening of the tendo Achillis, and in order to flex the foot further the child everts its fore-foot. This condition of pes valgus may be treated by raising the heel of the shoe half an inch, a measure which takes the strain off the tendon. The tendo Achillis should be passively stretched by the masseuse, and actively by the performance of suitable exercises. It is hardly ever necessary to tenotomize the tendo Achillis for this contracture in infancy. A masseuse can usually stretch the tendon sufficiently to overcome all symptoms.

AN ANAESTHETIC SCREEN, NEEDLE, AND THIMBLE AS "SURGICAL AIDS"

BY

SIR W. I. DE C. WHEELER,

DUBLIN

The anaesthetic screen (Fig. 1) was designed in the first instance for goitre operations. Often when removing the thyroid gland the upper pole is found at a high level, and the orthodox anaesthetic screen comes in the way of the surgeon's wrist and forearm. The screen is useful also in general work when no other anaesthetic screen is available, and in emergency operations (such as tracheotomy) undertaken in a private house. It is adjustable, and fits on to the head. The patient can neither see nor hear, which is an advantage when local anaesthesia is employed.

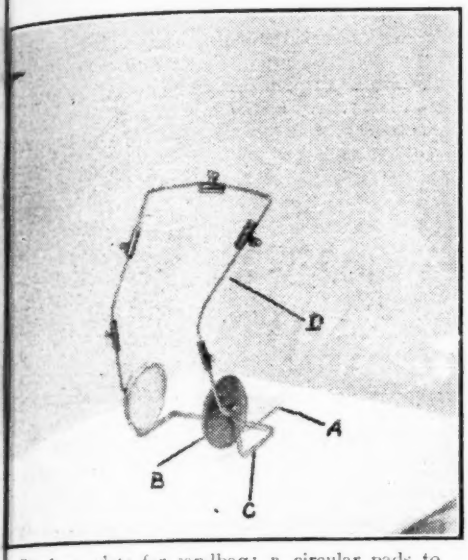


FIG. 1.—A, plate for sandbag; B, circular pads to grasp head about the ears; C, sliding frame; D, wire screen.

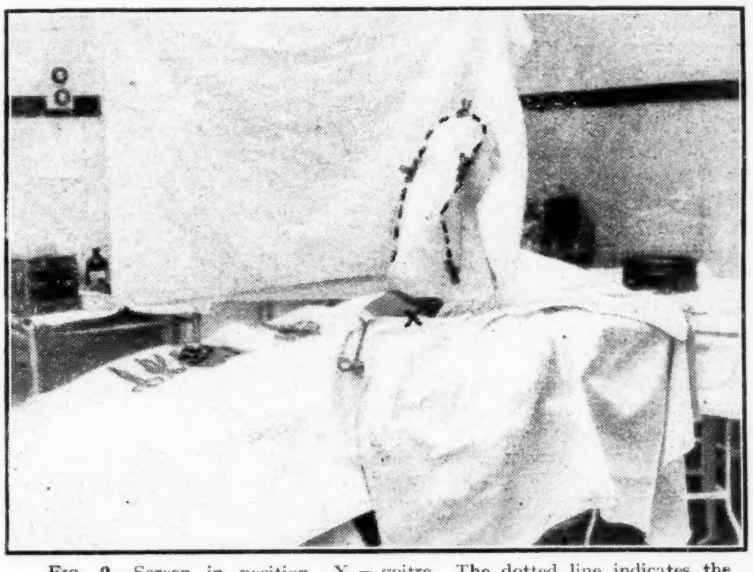


FIG. 2.—Screen in position. X = goitre. The dotted line indicates the wire covered with gauze. A towel is held up for photographic purposes.

A towel is first wrapped round the head; the padded pieces (B) are placed in position over the towel and adjusted so that the head is grasped firmly. A sliding slot arrangement in connexion with the steel support (C) permits adjustment. A flat piece of metal (A) projects behind, and a sandbag rests on this to secure immobility. The frame (D) acts on a swivel, and can be moved backwards or forwards.

When the screen is in position the patient's head is raised, and two superimposed sterilized sheets are placed under the neck. The superficial sheet is carried round the ear-pieces and the patient's head. The second sheet is brought round the neck in shawl-like fashion and secured to the sheets covering the patient. A gauze "wipe" of double thickness is thrown over the screen and fastened by "paper clips" (Fig. 2).

The screen is very light and portable. It is made by Messrs. Weiss and Co., Oxford Street, London.

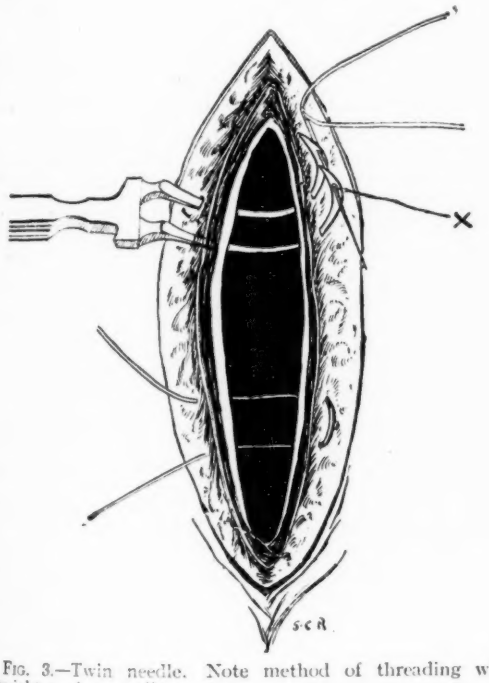


FIG. 3.—Twin needle. Note method of threading with straight sewing needle.

Twin Needle

The needle illustrated is of the Doyen variety. The handle carries twin needles. The standard pattern is so designed that a Halsted suture can be quickly introduced through the deeper layers of the abdominal wall in cases where difficulty is experienced in fat subjects or when laxity cannot be obtained. The eyes are sufficiently large to allow the passage of a straight needle for threading purposes (×, Fig. 3).

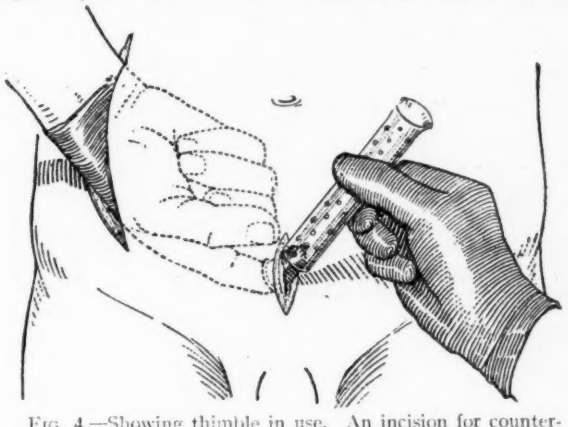


FIG. 4.—Showing thimble in use. An incision for counter-drainage has been made on the thimble. The tube is placed in position and guided to the bottom of the pelvis. (Wheeler's *Operative Surgery*.)

When the catgut is in position the loop between the two eyes should be pulled out several inches before withdrawing the needle. Otherwise withdrawal is difficult, and the catgut may become frayed. Fig. 3 shows one suture in position and the needle being threaded for the introduction of a second.

The twin needles are made in several sizes, and with varying spaces between the two. They are supplied by Messrs. Down Bros., London.

Thimble Guide

A thimble on the first finger acts as a guide on which a quick opening may be made for counterdrainage in cases of septic peritonitis (Fig. 4). The model now recommended is made by Weiss. It should fit the finger tightly. When the hand is passed from the main incision within the abdomen towards the suprapubic region the thimble is kept closely applied to the deep aspect of the abdominal wall, so that there is no possibility of a loop of small intestine being pushed forward and injured by the knife. A small incision is rapidly made on the finger guarded by the thimble ; a tube is slipped over the top of the thimble and guided to the bottom of the pelvis by the hand. The illustration depicts a glass tube ; a rubber variety is now more commonly employed. The thimble is of use in many situations (such as the axilla after breast amputation) where counterdrainage is needed.

PERFORATED TYPHOID ULCER

NOTES ON THREE SUCCESSFUL CASES

BY

J. B. G. MUIR, M.B., B.S., F.R.C.S.,

AND

S. C. CHIA, M.B., B.S.

THE KAILAN MINING ADMINISTRATION, TANGSHAN, NORTH CHINA

Perforation of typhoid ulcer occurs as a complication in about 3 per cent. of all cases of the disease, and, according to various authorities, accounts for approximately 30 per cent. of the total mortality. There is but one form of treatment—namely, operation as soon as possible. This is attended by a very high death rate. Harte and Ashhurst,[1] in their classical paper on this subject, based on a large series of cases, quote it as 74 per cent., with decided increases depending upon the twelve-hour periods elapsing between the occurrence and surgical intervention. The rate is distinctly lower in children, being given as 50 per cent. by Jobson and Gitting,[2] and as 36 per cent. by Elsberg.[3]

CAUSES OF HIGH MORTALITY

The factors responsible for this high mortality may be summarized as follows:

1. The catastrophe occurs generally during the second to third week of the disease, when the patient's general condition is at its worst, with severe toxaemia and a weak and dilated heart as contraindications to the necessary shock attending surgical intervention.

2. Occasionally it is very difficult to make a diagnosis of actual perforation, particularly in cases where great abdominal discomfort, pain, and distension have been dominating symptoms from the onset of the disease. (In such cases, however, a leucocytosis will always indicate the onset of peritonitis, and in any event it is probably better to submit even a weak and debilitated patient to the risk of laparotomy than to overlook a perforation until it is too late.)

3. The perforation may be complicated and temporarily masked by the simultaneous occurrence of intestinal haemorrhage from the separation of sloughs.

4. As a general rule, in cases of perforated typhoid ulcer, infection of the general peritoneal cavity by the extravasated intestinal contents is present from the first, with the formation of a watery exudate, and with little attempt at localization, or the formation of adhesions. (This was a feature of Cases I and II, described below.)

5. Difficulty is frequently experienced in suturing the perforation owing to the inflamed and friable condition of the bowel caused by adjacent ulceration. This has led some surgeons to treat the condition by passing an enterostomy tube through the perforation, fixing it *in situ* by a catgut stitch, and contenting themselves by draining the affected loop of bowel. Two successful cases treated in this way have recently been published by Branch.[4]

6. Occasionally perforations may be multiple, two, or even three, being present, and the necessary handling of the intestine during the operation may cause the perforation of adjacent ulcers.

7. Leakage frequently occurs, after apparently successful suture, resulting in the formation of a faecal fistula. These possibilities (Nos. 5, 6, and 7) have caused Roux-Berger,[5] Cadenat,[6] and others to treat the perforated loop of bowel by exteriorization, in addition to suture or enterostomy, but this method does not appear to have lowered the mortality.

8. Pulmonary complications, notably pneumonia, are common sequels of the operation.

THE HIGH DEATH RATE IN CHINA

In China the mortality tends to be still higher, as, in addition to the above considerations, there is the fact that the majority of patients wait until their conditions are literally hopeless before submitting to operation. An interesting point in the local occurrence of the disease has been observed by Loucks,[7] who considers that in some years typhoid infections show a much greater virulence than in others, and that there is then a much higher incidence of perforation. In view of these facts, the first and second cases here described are encouraging, in that twenty and forty hours elapsed respectively between perforation and operation, which was successful, and the third case is interesting as illustrating how localization of a typhoid perforation in a hernial sac may simulate a strangulated inguinal hernia.

CASE I (J. B. G. M.)

Perforation of typhoid ulcer, with operation twenty hours after onset: recovery.

L. W., aged 11, daughter of a Chinese merchant, was suffering from a severe attack of typhoid fever (Widal ++). On September 15th, during the third week of the disease, she was suddenly seized with acute pain in the lower abdomen, with vomiting, and became very collapsed. Her medical attendant, Dr. T. J. Hua, saw her half an hour later, when abdominal distension and rigidity were becoming apparent, and diagnosed perforation of a typhoid ulcer, a diagnosis which was subsequently confirmed by two colleagues. Operation was advised, and after considerable discussion consent of the family was obtained ; I was eighty-five miles away when telegraphed for. Unfortunately, owing to infrequent trains, I was unable to arrive before 6.30 the following morning. During this time the patient was kept in the Fowler position, continuous "drip" rectal saline containing 5 per cent. glucose was administered, and 5 minims of tincture of opium was given by the mouth four-hourly. I performed laparotomy, under open ether anaesthesia, at 7 a.m. on September 16th, twenty hours after the perforation had occurred. A large quantity of seropurulent fluid escaped from the abdomen when the peritoneum was opened, but there was surprisingly little congestion or lymphatic exudation on the intestinal coils. A small circular perforation in the base of an ulcer was found, situated on the free border of the ileum, about 8 inches from the caecum, and was closed by invaginating purse-string sutures of chromic catgut. The extravasated fluid was thoroughly mopped up, and the abdomen was closed with a large pelvic drain *in situ*, the whole proceeding occupying only eight minutes. The child suffered from severe shock, and her condition was very grave for about twenty-four hours, when she began to rally, and made

a good recovery. Her convalescence, though protracted, was very satisfactory, despite a small faecal fistula which persisted at the site of the pelvic drainage tube for about a month before closing spontaneously.

CASE II (S. C. C.)

Perforation of typhoid ulcers complicating pregnancy, with operation forty hours after onset: recovery.

L. H. A., aged 28, wife of a Chinese military officer, was admitted to hospital on November 18th, 1930, with the following history. She had been ill for twelve days, suffering from fever, headache, and abdominal discomfort. Following the ingestion of a herbal remedy recommended by a native "medicine man" she was seized with acute abdominal pain on the evening of November 16th. She vomited several times at the onset of the attack, and became very collapsed. The native practitioner treated her with morphine injections, but as her condition was rapidly becoming worse her relatives brought her to hospital at 6 p.m. on November 18th, forty hours after the onset of the acute pain, and, presumably, of the occurrence of perforation. The case was complicated by the fact that the patient was five months pregnant, but as it was obvious that peritonitis was present and that the patient was *in extremis*, I performed immediate laparotomy. On opening the peritoneum a quantity of gas escaped, with a lot of thin seropurulent fluid. The pregnant uterus filled the entire pelvis, and the inflamed and congested intestine, with considerable lymphatic exudation on the surface, appeared to occupy the entire abdomen. Two perforations were found on the free border of a coil of the ileum, about 12 inches from the caecum. They were about 2 inches apart, and were each closed with some difficulty, owing to the extreme friability of the bowel, by purse-string catgut sutures. Thorough irrigation of the entire peritoneal cavity was then carried out, using several pints of warm normal saline, and the abdomen was closed, three large tubes being left *in situ*, draining both flanks and the mid-line. The patient's condition was exceedingly grave for two days following operation, severe abdominal distension being present, but turpentine enemas caused the bowels to act on the second day, with considerable relief of symptoms. Matters were further complicated by the occurrence of a miscarriage on the third day following operation, a five-month foetus being expelled. The patient's condition however, did not seem to be greatly impaired by this mishap. On the eighth day following operation a severe attack of broncho-pneumonia developed, and for several days it was thought that this would prove a fatal complication. After several weeks' illness, however, the patient slowly recovered, and was discharged in good health from hospital eleven weeks after admission.

Consideration of these two histories makes it clear that it is never too late to operate in a case of perforated typhoid ulcer, as even the apparently hopeless patients (vide Case II) may possess amazing recuperative powers. An interesting and common feature to both cases was the thin, watery character of the peritoneal exudate, with flakes of yellowish-white lymph—not nearly so offensive as the exudate in many types of appendicular peritonitis. Unfortunately in Case I no bacteriological examination was made, but in Case II smear and culture showed staphylococci and Gram-negative bacilli.

Harte and Ashhurst,[1] in considering the bacteriology, have pointed out that the prognosis is graver if the streptococcus is the predominating organism, as, in cases in which the typhoid bacillus alone is the infecting cause, the peritonitis is of a relatively low-grade type, with a watery exudation and few adhesions. It is probable, therefore, that the successful results in these two cases were largely influenced by this factor.

CASE III (J. B. G. M.)

A Chinese casual labourer, aged 32, suffered since boyhood from a right inguinal hernia, which had latterly increased considerably in size, but, as he somewhat graphically put it, he could push his bowels back into his stomach when he lay down. On October 2nd, 1930, he was admitted to the Tongshan Base Hospital as a case of strangulated inguinal hernia. The history was that for the preceding fortnight he had been feeling unwell, suffering from headache, some diarrhoea, fever, and swelling of his stomach. Several days before admission he had experienced a good deal of pain in his hernial swelling, and found that it could not be reduced. He used considerable force in attempting reduction on the day of admission, and the pain became exceedingly severe. The inguinal swelling was very tense, with the skin over it very red, and the patient's condition simulated intestinal obstruction due to strangulation of the inguinal hernia. Immediate operation was advised and agreed to. On incising the sac much purulent fluid escaped, and a coil of ileum, about 18 inches in length, was seen to be incarcerated. It was very swollen and congested, but obstructed rather than strangulated. A small round perforation was present on the free border of the coil, through which the extravasation of intestinal contents had occurred, and several ulcers could be palpated along the free border of the bowel. The perforation was closed by an invaginated purse-string suture, the intestinal loop carefully washed with warm saline solution, and the loop of bowel returned to just within the abdominal cavity. A large drainage tube was inserted through the neck of the sac down to the sutured perforation, and the patient returned to bed. A subsequent blood examination gave a strongly positive Widal reaction, and the later course of the case was that of typical typhoid fever. A radical cure was performed for the hernia two months later.

In this case the hernia was undoubtedly rendered irreducible by the inflammatory swelling and infiltration of the Peyer's patches in the herniated bowel, as a consequence of typhoid. It was indeed a lucky coincidence that the perforation occurred in the hernial sac rather than in the general peritoneal cavity, although it is quite probable that perforation was induced by the patient's own attempts at reduction of the inflamed bowel.

REFERENCES

[1] Harte and Ashhurst: *Annals of Surgery*, 1904, xxxix.
[2] Jobson and Gitting: *Amer. Journ. of Med. Science*, November, 1909.
[3] Elsberg: *Annals of Surgery*, July, 1903.
[4] Branch, J. R. B.: Ibid., March, 1928.
[5] Roux-Berger, J. L.: *Bulletin et Mémoires de la Société Nationale* (Paris), February, 1930, lvi, et discussion.
[6] Cadenat: Ibid.
[7] Loucks, H. N.: Personal communication, from Department of Surgery, Peiping Union Medical College, Peiping.

TUBERCULOUS PERITONITIS SIMULATING COELIAC DISEASE

BY

E. C. WARNER, M.D., M.R.C.P.

PHYSICIAN TO THE CHILDREN'S DEPARTMENT, THE MILLER GENERAL HOSPITAL; PHYSICIAN WITH CHARGE OF OUT-PATIENTS, THE DREADNOUGHT HOSPITAL, GREENWICH

In view of the interest aroused in coeliac disease by the excellent review of Leonard Parsons,[1] and by the theory put forward by Ryle[2] that the essential cause is an obstruction of the lacteals by previous inflammation, it seems opportune to record a case recently under my care in the Miller General Hospital, which closely mimicked coeliac disease, and in which extensive tuberculous peritonitis was found at necropsy.

CASE HISTORY

Mary O. was first referred to me by Dr. Rogerson of Bexley Heath, on account of diarrhoea, abdominal enlargement, and wasting. In this family the seven other children were healthy. At birth she was a full-term baby weighing 6 lb., and she was breast-fed. She remained well till two months before I first saw her, when, at the age of 2 years and 4 months, she began to get periodic attacks of diarrhoea with occasional pale stools, associated with loss of weight, feverish turns, whining, abdominal enlargement, and occasionally prolapse of the rectum. At no time was there any

abdominal pain or vomiting. On examination she was evidently small for her age. Her weight at the age of 2½ years was 17½ lb., and her height 30 inches (average normal 33 inches). She was very wasted, the limbs being much more so than the abdomen and face. There was but little subcutaneous fat anywhere; there was marked wasting of the gluteal region, so that the prominence of the buttocks had almost disappeared and the skin hung in folds. There was definite loss of tone in the muscles, producing a dorsal kyphosis. In contrast to this wasting the abdomen was enlarged (girth at umbilicus 18 inches). There were no signs of free fluid, but gaseous distension was so marked that coils of gut could occasionally be seen through the abdominal wall. Palpation did not give the characteristic doughy feel of tuberculous peritonitis, and careful examination did not reveal any enlarged or palpable abdominal glands. Rectal examination was also negative. The sclerotics were of rather light blue colour, with the particularly brilliant reflection from them so often associated with hepatic disorders. The bony skeleton showed some evidence of rickets, as the radial epiphyses were enlarged, the tibiae rather bowed, the head bossed, and there was beading of the ribs. She was also evidently anaemic.

There were anything up to five stools a day, the average being two to three. They were large, bulky, very offensive and pale, with evident excess of fat and some excess of mucus. This was confirmed by microscopical examination, which showed a large excess of split fat to be present. The stools were alkaline (*p*H 8.0). Cultivations showed the presence of *B. coli* and *Streptococcus faecalis* only. *X*-ray examination of the abdomen failed to reveal any opacities suggestive of tuberculous peritonitis. A blood count showed haemoglobin 50 per cent.; red cells, 4,700,000 per c.mm.; colour index 0.5; white cells, 10,800 per c.mm. During the whole of her time in hospital she ran an irregular pyrexia; some days the temperature was normal, while at other times the rectal temperature would rise to 104°. For periods of two to three days, with the larger rises of temperature, she was fretful, the abdominal distension became much more marked, and the stools more offensive, copious, and still more fatty. In between these bouts the condition would settle down to the quiescent phase. She also exhibited the mental characteristics of cases of coeliac disease. During her brighter periods she looked precocious in proportion to her size, and took an intelligent interest in what was being said about her, although saying very little herself. Her appetite was capricious.

She was given a considerably reduced fat diet in accordance with the usual plan in these cases; the protein was increased, and irradiated ergosterol and ultra-violet light were administered. To control the diarrhoea, silver nitrate and, later, kaolin were given. Under this regime the abdomen became smaller, the stools became much less offensive and firmer, and the fat largely disappeared. In spite of this her general condition did not improve. She slowly lost weight, became very anaemic, and continued to get periods of pyrexia. Later, streaks of blood and some pus appeared in the stools, in which starch granules and excess of meat fibres were present. Treatment with pancreatic ferments and bile salts combined with a blood transfusion were unavailing. Towards the end she became drowsy, and marked oedema of her face and legs occurred. When she died at the age of 2 years and 10 months her weight had fallen to 12 lb. 12 oz.

POST-MORTEM FINDINGS

Dr. W. Smith, pathologist to the Miller General Hospital, made the following observations. There was much wasting of the arms and gluteal regions of an emaciated child. Recent adhesions surrounded the whole of the right lung, in which small areas of consolidation were present in all lobes, more marked in the upper lobe; the left lung appeared normal. There were no obviously enlarged glands in the mediastinum; the heart muscle was good, with slight right-sided dilatation; the liver showed some degree of venous engorgement. The intestines were matted together and adherent to a large mass of mesenteric glands involving the whole of the mesentery; caseation was present in many. Section of the glands revealed the typical appearances of tuberculous disease, with areas of caseation and giant cell systems. Similar changes, and also large areas of lymphocytic infiltration, were found on histological examination of the lungs.

COMMENTARY

This case showed all the classical symptoms and signs of coeliac disease. The patient was a girl (Still states that coeliac disease is nearly twice as common in girls as in boys), who developed the disorder at the age of 2 years and 4 months (Still gives the limit of age of onset in his series as 8 to 38 months). There was marked hypotonia and wasting, especially of the glutei—described as typical of coeliac disease by Reginald Miller. The stools were large, bulky, pale, mucoid, and offensive, and consisted largely of split fat in the form of soaps and fatty acids. The abdomen was much distended with gas. The mental state was typical of the coeliac child, and there was a tendency to rickety changes in the bones, a point stressed by Leonard Parsons. A variation in the patient's condition every few days is often found in coeliac disease, as are also the secondary anaemia and the rather low white cell count; and some oedema of the face and extremities is not unusual. An irregular pyrexia is often present in the diarrhoeic form of coeliac disease (R. Miller). The picture seemed complete, as there was no radiological evidence of diseased abdominal glands, yet at necropsy an extensive tuberculous peritonitis was found, without any calcification in the glands. The only points that were in favour of a diagnosis of tuberculous peritonitis in this case were the height of the pyrexia and the rather rapidly fatal termination of the disease.

REFERENCES

[1] Parsons, L. G.: *Lancet*, 1931, i, 61.
[2] Ryle, J. A.: Ibid., 1931, i, 161.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

PERFORATION OF GASTRIC ULCER THREE AND A HALF YEARS AFTER GASTRO-ENTEROSTOMY FOR PERFORATING DUODENAL ULCER

This case seems to me to be of sufficient interest to put on record as an unusual sequel of gastro-enterostomy.

The patient, a male, first came under my care on July 28th, 1927, at which date he was 44 years of age. He had a small perforation of the anterior wall of the duodenum, and gave a six months' history of pain after meals. I sutured the perforation, and performed posterior gastro-enterostomy. Recovery was uneventful.

In reply to a follow-up inquiry in September, 1930, he wrote to the effect that he had been under his doctor recently with gastritis, but that the condition had cleared up.

On January 28th, 1931, he was again admitted to hospital with symptoms of perforation. Laparotomy showed the duodenum apparently normal, the gastro-enterostomy in perfect order, and an indurated ulcer of the lesser curvature of the stomach, proximal to the stoma, which had perforated. I repaired the perforation, removed the appendix, and drained the pelvis. Recovery was again rapid.

X-ray examination of the stomach about three weeks after the second operation showed that food passed very rapidly through the gastro-enterostomy opening.

The patient was a fairly healthy-looking man of spare build. Most of his teeth had been extracted. He was said to have a partiality for alcohol. He told me that he was

free from stomach trouble for nearly three years after the first operation.

The patient was readmitted to hospital in May, 1931, suffering from a subphrenic abscess, to which he succumbed.

In the B.M.A. investigation into the after-history of gastro-enterostomy there were 995 cases in which the operation had been done for duodenal ulcer. In only three of these was there a history of subsequent gastric ulcer, and in none of these did perforation occur.

Northampton. C. C. HOLMAN, M.B., F.R.C.S.

KERATODERMIA BLENNORRHAGICA

The following note may be of interest. In spite of the fact that a gonococcal infection has not been discovered, I believe this to be a case of keratodermia blennorrhagica, which is somewhat rare in women.

Mrs. N. T., aged 30, the wife of a dairyman, was admitted to the Gloucestershire Royal Infirmary on January 23rd, 1930. The history was that for three months she had pain and swelling of the feet, followed by a similar condition in the knees, which had lasted for three weeks. There was a rash, which was most marked on the feet and legs. She had two children, but had experienced no difficulty at her confinements. On admission she appeared very ill, being pale, cachectic, and emaciated. The tongue was dry and dirty, the lower teeth were very septic, and the right tonsil was enlarged and appeared also to be infected. Both knees were swollen and painful. Around the toes of both feet and on the soles were large heaped-up masses of hard irregular horny skin. On the legs the whole area from the knees downwards was covered with (*a*) small pink papules, the largest 1/4 inch in diameter, gradually changing to (*b*) orange-brown papules, and (*c*) papules with scaly horny tops, which as they enlarged became limpet-like and of a grey colour. Some of these were nearly three-quarters of an inch in length; on removal they

did not leave a raw surface. The three types of lesion became less numerous on the thighs, and only a very few hard scaly papules with sharp tops occurred on the abdomen, chest, arms, and palms of hands. The temperature was never above 100.8° F., but the pulse kept in the vicinity of 100 until convalescence was well established. No abnormal physical signs or symptoms were detected in other organs. The Wassermann reaction of the blood was negative. The urine was sterile. A swab from the cervix did not show gonococci, but there were some streptococci and staphylococci. The faeces showed marked increase of the faecal streptococci. From the throat a non-haemolytic streptococcus of the *viridans* type was isolated. From the pus in a few skin lesions the *Staphylococcus aureus* was grown. A history of gonococcal infection could not be obtained.

The early treatment consisted in feeding the patient and giving mercury, iodide, and arsenic, but there was no improvement. A gonococcal vaccine and boric acid starch poultices were then tried, the arsenic being continued. She very rapidly improved, and left hospital on May 3rd with no rash, with increased weight, and good colour. She was, however, unable to walk. To-day she can do this, but she has very flat feet, which are tender; otherwise her health is good.

My thanks are due to Dr. Davey of the Gloucestershire Infirmary for his help in the bacteriological investigation of this case.

D. E. FINLAY, M.B., B.S.,
Physician, Gloucestershire Infirmary and Eye Institution.

Gloucester.

Reports of Societies

SENSORY MESSAGES

The Croonian Lecture before the Royal Society was given, on June 4th, by Professor E. D. ADRIAN, F.R.S., who took as his subject the messages in sensory nerve fibres and their interpretation. He said that by amplifying the electric changes which took place in the individual nerve fibres it was possible to record the messages which passed from the sense organs to the central nervous system and from the motor nerve cells to the muscles. It was found that a series of brief potential changes travelled along each nerve fibre; the changes were of fixed intensity and duration, but their frequency varied with the intensity of the excitation. Each potential change represented a nerve impulse of the type made familiar by the classical methods of electrophysiology. Reasons were given for the belief that all nervous communication was carried out by such impulse messages, and that the impulses, like the electric changes which accompanied them, were unaffected by variations in the intensity of the stimulus. The general similarity of motor and sensory messages made it probable that the sensory nerve endings and the synaptic regions of the central nervous system worked on a common plan depending on the fundamental properties of excitable cells. The sensory messages which had been most thoroughly investigated

were those produced by the muscle spindles. Those from the skin receptors, though less easy to analyse, were of greater interest to the physiology of sensation. At present the most definite results had been obtained from the frog. The frog's skin contained receptors which responded to light contact with a brief discharge of impulses travelling in nerve fibres which conducted rapidly. A vibrating stimulus gave a series of impulses with the same frequency as that of the stimulus, but discharges of high frequency and long duration from these receptors did not give rise to pain. Firm pressure at certain points gave a continued discharge of rapid impulses with a declining frequency. The receptors probably differed from those responding to light touch, though both were in the superficial layers of the skin. Stimuli which would be likely to cause continued pain gave rise to impulses of small action potential travelling in fibres, which conducted very slowly (about 1 metre a second). In the mammal, as in the frog, light touch produced a brief discharge of impulses of large potential conducted rapidly, and firm pressure gave a continued discharge. Impulses of smaller potential conducted at slower rates were produced by movement of the skin, and persistent discharges often arose from exposed tissues. At present it appeared that some of these impulses were caused by stimuli which would not necessarily be painful. A comparison of these results with those of Gassa and Erlanger and of Piéton showed that the nerve fibres responsible for pain were not all of the same type, though they were all of smaller diameter than the tactile fibres. The lecturer suggested that the rate of reaction and amount of conveyance in the sensory pathways were important factors in determining the intensity of sensation, since this must depend on a summation of the effects of discontinuous impulses.

MENTAL DISORDER AND PERNICIOUS ANAEMIA

At the quarterly meeting of the Royal Medico-Psychological Association, held on May 21st at B.M.A. House, Tavistock Square, London, under the presidency of Dr. T. SAXTY GOOD, Dr. NORMAN R. PHILLIPS read a paper on mental disorders associated with pernicious anaemia.

Dr. Phillips said that Continental observers especially had shown that mental disorder was frequently met with in association with pernicious anaemia. In the milder mental disturbance there might be no more than a modification of character, chiefly shown in irritability and unstable moods. When the mental state was more pronounced, it was usually of the paranoid type, with delusions of persecution and suspicion, directed chiefly against those who were looking after them. Cabot found delirium in 44 per cent. of his cases of pernicious anaemia. At night the patient had terrifying hallucinations, with great agitation and restlessness ; his reaction to these was to become grandiose, abusive, aggressive. The mental syndrome resembled that of toxic psychoses, and so it could be understood that the testamentary capacity of the patient might be questioned. The period of the illness at which the mental change might be evident varied. Formerly it was regarded as a terminal condition, but now it was realized that it could occur at any stage in the disease ; it had been known to supervene while the anaemia was being treated. When the mental symptoms occurred early in the pernicious anaemia, it was easy to make a wrong diagnosis ; such a patient might be labelled hysterical or neurasthenic, the underlying anaemia not having been recognized. Dr. Phillips quoted several cases in point, and showed by progressive blood-count figures how steady was the improvement following liver treatment.

Professor G. M. ROBERTSON said that during his career he had seen many cases of chronic mental disorder developing in the course of pernicious anaemia, but recently he saw a case of that disease in which mental symptoms of acute degree developed early. There had been the usual symptoms of general weakness and gastric trouble, with a suspicion that cancer of the stomach might be present. Then the patient began to get rather feeble-minded, with suspicions, and quarrelled with the daughter who looked after him. After he had been in a nursing home several days he developed an acute delirious attack following anxiety. He was certain he would be injured, was noisy and delirious, and so had to be removed. After his transfer to a nursing home for mental cases Professor Robertson thought it might be a case of general paralysis, and later he thought it might be early senility. Then it was found that the patient had pernicious anaemia, obscured by the mental symptoms. The delirious condition passed off quickly after proper nursing and treatment, but he was still disorientated ; he did not know where he was, or realize the lapse of time. A marked symptom in him was amnesia ; there was considerable want of the power of attention. Later, suspicion gave place to a mild elation, and he became dominating and dictatorial. When it was found that he had pernicious anaemia he was at once put upon liver treatment, and soon began to improve, both mentally and physically, and in six weeks he had left the nursing home quite recovered.

Dr. M. J. NOLAN referred to a similar case which he had seen ; the mental symptoms in that case also were acute, and of the kind Professor Robertson mentioned. In a few months' time the liver treatment restored the patient to her duties.

Dr. W. F. MENZIES referred to a new refractometer designed by Dr. Malloy of Cheddleton Mental Hospital, which enabled a differential count to be arrived at from a smear in a very short time. Only four cases of pernicious anaemia associated with mental symptoms had been seen at Cheddleton in the last few years. Two of the patients died. In one of them the anaemia would never have been detected but for the routine examination being very thorough in every new admission, a course which he strongly advocated. The few cases he had seen had not enabled him to correlate definitely the mental with the physical states.

Sir HUBERT BOND referred to the liability of the mental symptoms putting the observer off the underlying physical state. This, incidentally, brought out the supreme importance of making a thorough clinical examination of the patient when admitted to the institution. It would be a matter of heart-searching if it were known how many patients did not have a proper blood examination. There should be a complete examination of patients at least once a year.

Dr. DOUGLAS MCRAE thought that in one of the cases related there was some mental improvement before the liver treatment was begun, and therefore more might have been claimed for the liver course than was its due. Patients showed periodic attacks of pernicious anaemia, which they recovered from, and the disease used to be cured by iron before the liver treatment was discovered.

Dr. J. R. LORD said Dr. Ford Robertson had found that pernicious anaemia was due to some elaborated septic process. With regard to the mental symptoms, he thought it likely that the anaemia depressed the liver function, which might cause the mental effects. On the other hand, the septic matter absorbed into the system might poison the brain and the liver too. Many realized that a vigorously functioning liver was an important factor in preserving a cheerful mentality. In ordinary life it was a common observation that liver sluggishness

was associated with irritability and bad temper. It might not be an unwise habit to take a morning "liver cocktail." Mental cases should not be considered as chronic until the expiration of at least three years, particularly those due to toxaemias and in elderly people whose colons were a perfect laboratory for the cultivation of all kinds of pathogenic organisms dangerous to the nervous system.

Dr. A. G. SHERA said the somatic side of mental disease now seemed full of hope, when compared with the outlook fifteen years ago. He considered, as a result of his experience, that mental symptoms in association with pernicious anaemia must be of rare occurrence. Eve's halometer showed up the megalocytosis of pernicious anaemia, and was valuable in borderline cases, which were a cause of much anxiety. But he would not like to separate out an unknown case with that instrument alone unless it gave a definite reading; it, however, allowed one to do the preliminary sorting, and that only occupied a few moments. In cases of pernicious anaemia he always pressed for a blood transfusion, as it shortened convalescence, and it should have an equally good effect on the mental symptoms in these cases. He had heard it argued that hydrochloric acid was essential to the amelioration of subacute combined degeneration. Streptococcus in the faeces was a characteristic of pernicious anaemia; he did not know whether it was a special strain, or whether it was a question of numerical increase in the streptococci present. If Dr. Phillips had provided another way of tackling mental disease he deserved every congratulation.

Dr. HAMILTON MARR mentioned the similarity of the mental and physical symptoms of these cases to those of myxoedema when untreated. The fresh liver treatment reminded him of the original treatment for myxoedema. If the liver principle could be given in a more assimilable form it would be an advantage.

The PRESIDENT thought it would be beneficial to try and ascertain why a patient with pernicious anaemia should have mental confusion and delusions of persecution. Certainly many patients with pernicious anaemia were lethargic.

THE VOLUNTARY MENTAL PATIENT

At a meeting of the London Association of the Medical Women's Federation, held on May 19th, with the president, Dr. LETITIA FAIRFIELD, in the chair, Dr. MARY BARKAS read a paper on the voluntary mental patient.

Dr. Barkas said that the main thing in the new Act with regard to voluntary patients was that provision for their treatment was not compulsory on the local authority. Even a statutory duty was often neglected by local authorities, so that there was not likely to be any great hurry to take up a permissive activity. Unless someone pushed the local authorities they would do nothing, and it was extremely important for all practitioners to look out for cases requiring such treatment and to see that the local authority made provision for them. Further, the Act now gave the local authority power to spend money on out-patient departments, preventive measures, research, and after-care. Again, it was the duty of practitioners to see that the money was spent. A good deal of the hopelessness often felt about mental patients was due to the fact that they were not treated until the most favourable period for treatment had passed. Those who had worked in institutions where voluntary boarders had been taken for some time had a more optimistic outlook. If the surgeon never saw a cancer case until three years after hope of successful treatment was over, and moreover had to live with those patients until they died, he would not feel he was getting the best chance. The general practitioner should be as ashamed of letting a mental case go beyond the curable stage as of letting a case of cancer become inoperable. How far the proportion of voluntary patients increased in public hospitals depended largely on the general practitioner, who needed a great deal more insight into the personality of mental patients. He was in a unique position for learning all about them, and for catching them in an early stage. Far too many practitioners told their patients to pull themselves together when they needed to be put to bed. "Make an effort, Mrs. Dombey," was the tragedy of many mental patients. All that voluntary patients had to do was to write to the medical superintendent and ask for admission; they could leave on giving three days' notice in writing, thus allowing time for communication with relatives and for making arrangements. The medical superintendent had to see that the patient understood these conditions; often a doctor would send up as "voluntary" a patient who was incapable of appreciating the situation. If the voluntary patient lost volition and remained without it for a month, he must be put on some other footing. In recent years the attitude of the Board of Control had altered very considerably; the Commissioners now wanted a patient to be on a voluntary basis if possible—provided only that he could understand his position. It was surprising to what extent really insane people would come as voluntary patients.

Discussing some types of voluntary patient, Dr. Barkas said that nearly every type of mental illness could be found among them—even acute mania and paranoia. Far more patients with delusions of persecution could be cured if they were taken in time; their delusions developed very slowly, and they did not generally reach a mental hospital for ten or twelve years after their first complaint. They came up for advice about headache or rheumatism, or some other ailment apparently irrelevant to their mental state, and the general practitioner should look out for them by inquiring of patients whether they thought there was any adverse influence affecting their health. The melancholic—the patient who got depressed and felt he was no good—was very suitable as a voluntary patient. Far too often these patients were treated vaguely by the general practitioner and urged to make an effort—until at last they committed suicide—whereas the first thing taught them in a mental hospital was to go to bed at once and stop making an effort as soon as this black cloud of dullness, absence of feeling, and insomnia came down on them. The difficulty was to select those melancholics who were best treated as voluntary patients. Some of them found it very difficult to make up their minds, and a decision to enter a mental hospital and stay there was beyond them. They constantly gave notice and withdrew it, and the ensuing worry prevented them from getting the needed rest. They were depressed, retarded, and full of guilt, and could usually be certified. When the decision was taken out of their hands they settled down and got better. It would have been an advantage, in Dr. Barkas's opinion, if the Act had provided that a voluntary patient, having once signed a request to enter a mental hospital, could be detained for a few months. Another type of possible voluntary patient was the neurotic. Many of these would be seen in the new out-patient departments, and in-patient provision for them was greatly needed. Whereas those in the psychotic group needed all the resources of the mental hospital, at any rate in reserve, the neurotics often needed no more than removal from home and an occasional talk, or a rest in the open air with massage, feeding-up, and, above all, a little understanding affection. Many people resented the idea that these patients should come under the Board of Control, but the smaller homes might be

very unsatisfactory if under no supervision. The neurotic was particularly liable to become the victim of the quack. If general hospitals made suitable provision for voluntary mental patients, neurotic patients would get the advantage of thorough physical investigation. The general hospitals were, however, short of beds, and their help would not go far. An out-patient department was essential for the neurotic and voluntary class of patient.

In reply to questions, Dr. Barkas said that the treatment of early paranoia in institutions depended on the employment of a sufficient staff. Many early cases of schizophrenia and other mental illness were much better treated outside a mental hospital, and some further provision was required for them. They needed both psychological and physical treatment—exercises and massage, for instance—and they tended, when once they got into hospital, to relapse into "just sitting." They might do well with out-patient treatment in their own homes. Some kind of social worker was essential; at least 50 per cent. of the treatment of the patient was treatment of the family.

In the ensuing discussion the PRESIDENT pointed out that the clause relating to temporary patients had been so whittled down in its course through Parliament that it was very difficult to interpret. It was extremely rare for any patient, not hopelessly insane, to remain without volition for a month. Mild and transient psychoses were far more common than was recognized. Lay people still tended to think of mental illness as a thing apart, and took any attempt to deal with it as an insult. Coroners were ready enough to attach blame to the medical profession for any slight error in physical treatment, but never mentioned the gross maltreatment of melancholia; they did not realize how easy it was to recognize early symptoms. One early manifestation sometimes encountered was extreme resistance to treatment of any kind: "I am unworthy of medical attention." The paranoiac, above all other people, could be moved by self-interest, and could be induced to enter a mental hospital if persuaded that it was to his advantage to do so. The public mind must be disabused of the idea that the early mental patient and the voluntary patient were necessarily curable. The voluntary provision was going to be of the utmost benefit and comfort to the chronic and relapsed patient. An out-patient department without in-patient beds was a useless thing. The out-patient department attached to the big general hospital and teaching school would, in her view, prove a delusion. Nor could the work depend on voluntary social service; it was astonishing that the Board of Control had not issued a warning against instituting any treatment without trained social workers.

Dr. MILDRED CREAK emphasized the number of cases of mild melancholia treated devotedly by the practitioner, up to the day of the suicide, as neurasthenia. The practitioner's attempts at distraction were comparable to taking a patient with a broken thigh folk-dancing. She questioned whether the anxiety of the legislator to safeguard personal liberty was really in the interest of the patient.

Dr. BARKAS, in reply, did not agree that an out-patient department without beds was useless. It might be valuable if it had attached to it some kind of occupational centre or hostel and a convalescent home. An apparently genuine neurotic might suddenly slip over into an acutely psychotic phase; it was therefore difficult to draw a hard-and-fast line between those who needed mental hospital treatment and those who could be safely treated outside. A good convalescent villa in a mental hospital was probably the best place to treat them. Every melancholic should be regarded as a potential suicide, and yet at the same time a certain amount of risk must be taken.

Reviews

THE MEDICAL ANNUAL, 1931

The Medical Annual[1] needs no introduction, and the present volume comes up to the high standard set by its predecessors. In the space at our disposal it is only possible to notice a few of the many items which together make up this conspectus of progress. Colonel L. W. Harrison, writing on the diagnosis of syphilis, mentions the important resolutions taken at the eighth International Congress of Dermatologists and Syphilologists in Copenhagen last year. The first was that at least two different sero-diagnostic methods should be used, one of which should be the Wassermann, and the other a reliable precipitation reaction. The second was that pathologists should agree on a uniform plan of reporting the results. It is well known that the sensitivity of the Wassermann reaction can be varied within wide limits by altering the nature of the antigen; too great an increase in sensitivity, however, leads to the occurrence of false positives. The advantage of the more recently elaborated precipitation reactions is that with most of them a considerably higher grade of sensitivity is attainable without the appearance of false positives. In the diagnosis of syphilis, therefore, in conjunction with the well-tried Wassermann reaction, one of the precipitation tests such as the Meinicke clearing or the Müller coagulation test should be employed. These tests are of particular value in following cases of treated syphilis, and in preventing the practitioner from discontinuing treatment as soon as the Wassermann becomes negative. Mr. J. P. Lockhart-Mummery draws attention to Cuthbert Dukes's findings on the mode of spread in carcinoma of the rectum. Starting in the mucous membrane, the growth spreads by direct extension on the surface and by infiltration of the rectal wall; it is not till the perirectal tissues have been penetrated that dissemination by the lymphatics occurs. Before the tumour has been excised and examined microscopically it is impossible to tell whether the perirectal tissues are invaded; in practice it is found that this invasion has occurred in three-quarters of all cases considered operable, and that in one-third of all operable cases there are actual metastases in the lymphatic glands. Treadgold's opinions on the method of estimating cardiac efficiency are referred to by Dr. A. G. Gibson. The physiological bradycardias, with a pulse even as low as 48 per minute, are generally evidence of good cardio-vascular stability; officers selected for the Royal Air Force rarely have a pulse rate above 72. It is considered important to ascertain the minimum blood pressure (diastolic); men with low minimum pressures show a greater tendency to fainting than others. A small pulse pressure, so long as the systolic pressure is not too high, is regarded favourably. In the treatment of rickets Dr. Reginald Miller remarks that there are now so many reliable methods at the disposal of the physician that it is a matter of difficulty in any one case to select the most suitable. One of the difficulties lies in the lack of standardization of such products as irradiated ergosterol, vigantol, and radiostol. For hospitals and welfare centres the most economical and efficient, provided a sample of proved antirachitic value is chosen, is still cod-liver oil. The interesting, but ill-named, subject of renal rickets is discussed by Sir William Wheeler, who illustrates his article by photographs and skiagrams of two cases under his care. The same author, dealing with the treatment

[1] *The Medical Annual*. Edited by F. Carey Coombs, M.D., F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S. Forty-ninth year. Bristol: J. Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd. 1931. (Pp. xcix + 603; 143 figures, 70 plates. 20s. net.)

of burns, issues a warning against the application of tannic acid to the fingers at the tips; the resulting coagulum, he says, forms a very tight tourniquet, and the finger-tips may slough off. Professor Beckwith Whitehouse records the results of the experimental trial made by Professor Crew at Edinburgh of the Zondek-Aschheim test for pregnancy. The value of this test is still *sub judice*, but it appears that during the first few weeks of pregnancy it yields a correct answer in 95 to 98 per cent. of cases. False positives may be due to death of the ovum, incomplete abortion, hydatidiform mole, and chorion-epithelioma. A positive reaction persists for a few days after parturition and complete abortion, and may therefore have a medico-legal application. Mr. Stanford Cade contributes a critical article on the radium treatment of cancer. Public opinion as regards radium, he says, has passed from a state of exaggerated enthusiasm to that of cautious pessimism. Neither of these attitudes is justifiable. Radium holds a unique position in the treatment of malignant disease if the impossible is not expected. Early cancers in accessible situations give good results in a large number of cases, but radium *per se* remains a local remedy and is no weapon for the treatment of dissemination. Teletherapy, or treatment by the so-called "bomb" containing several grams of radium, has not yet achieved the results anticipated on theoretical grounds from massive irradiation. In the treatment of many tumours, such as those of the uterus, rectum, bladder, and buccal cavity, the most satisfactory method is the uniform irradiation of the cancer-bearing area by means of screened radium, so that gamma rays only are used, prolonged over periods of seven to ten days for intestinal, and two to three weeks for surface, treatment.

RADIOLOGY FOR STUDENTS

The elementary textbook of radiology by Dr. PETER KERLEY published in the Recent Advances Series, deals mainly with the correlation of radiological investigations with pathological findings. The title *Recent Advances in Radiology*[2] is just a little misleading, inasmuch as the author in ten chapters describes the radiological appearances, both normal and abnormal, of the various systems of the human body. Apparatus is omitted, and wisely so, for this can be better studied in the numerous catalogues of instrument makers. It is perhaps to be regretted that technique is also banned, for the many recent advances in technique are of interest to radiologists, though not to the general practitioner of medicine. The various chapters include injuries and diseases of bones and joints, the heart, the lungs, the alimentary canal, the biliary tract, the genito-urinary tract, and the uterus. The information given is accurate and well arranged; it is of necessity condensed, but at the end of each chapter a useful bibliography is added. The radiographs which illustrate the text are numerous and of uniformly good quality.

Recent advances in *x*-ray therapy are described in Chapter XI, the author stating that only the most important advances, and the trend of current opinion regarding them, are given. This chapter is not up to the standard of the rest of the book. It is scrappy and inaccurate, and the many dogmatic statements made are misleading, as no qualifying explanation is given. Thus in writing of *x*-ray dosage we find the following:

"Dosage in the earlier days was measured by means of pastilles which changed colour on exposure to *x* rays. The exposed pastille is compared with a standard in a calorimeter, and the dose delivered thus measured. There are three types of pastille in general use—the Sabouraud, the Holzknecht, and the Kienböck. The first two are remarkably accurate, but there are many fallacies in the last, owing to the numerous factors required for the development of the change in colour."

It was just because of the inaccuracy of the pastille method of estimating *x*-ray dosage that radiologists sought for, and obtained from the physicists, a more reliable method. Furthermore, the Kienböck method of estimating dosage is a photographic one, and does not involve the use of a pastille. Again, it is wrong to state that "there are many types of accurate dosimeters in which the dose is measured by a spectrometer or in terms of the ionization which takes place in an ionization chamber exposed to irradiation." A spectrometer is not used to measure the dose, but to determine the wave-length of the radiations. The definition of the international standard *r* is also wrong, and is obviously confused with the Solomon R. It is somewhat perplexing to the student to read on one page that—"the radiologist should not aim at cure by destruction of growth; he should rather aim at restricting the progress of growth, and at the same time raising the patient's resistance"—for on the next page he finds the statement that "550 to 700 *r* is lethal for most malignant cells. With well-chosen fields it is possible to deliver a lethal dose to a growth without causing more than a temporary erythema." The student will quite naturally ask how he is to reconcile these two statements.

In future editions the chapter on *x*-ray treatment should either be thoroughly revised or omitted, and we would suggest that the subject of recent advances in *x*-ray treatment, along with radium treatment, might form a separate volume in the Recent Advances Series. Apart from the chapter on *x*-ray treatment the book is good, and should prove an excellent elementary textbook on radio-diagnosis for students.

PRIMARY SYPHILIS IN THE FEMALE

Dr. ANWYL DAVIES's book, *Primary Syphilis in the Female*,[3] represents his London M.D. thesis, for which he was awarded the gold medal. How many medical practitioners have ever seen a primary chancre on the cervix uteri? Yet the author tells us that this is the commonest site on the female genitalia for a primary lesion—and who can contradict him? Dr. Davies has seized a golden opportunity to study an aspect of syphilis which is little known and which has been much neglected. Many observers have inquired why so little primary, as compared with secondary, syphilis is seen in the female, and here the question is answered; an interesting list of the various sites of primary genital chancres is given on page 10, and another on page 1 gives the occupations of the patients. Chancres in the various situations are considered separately and carefully classified and described; vaginal and extragenital chancres are shown to be much less common than is generally supposed. Differential diagnosis is discussed, and a description given of the various lesions which may simulate primary syphilis. Stress is very properly laid on the necessity for the use of the dark-ground microscope in every suspicious case; this, and this alone, will clinch the diagnosis in the earliest cases.

The coloured plates are beautifully reproduced, and convey a really faithful impression of the appearances of the lesions; some of the uncoloured photographs appear to have been over-developed. There is a good deal of repetition in the text, which might well be reduced by nearly a half. Much of the English is loose, such as

[2] *Recent Advances in Radiology*. By Peter Kerley, M.B., B.Ch., D.M.R.E. London: J. and A. Churchill. 1931. (Pp. viii + 324; 120 figures. 12s. 6d.)

[3] *Primary Syphilis in the Female*. By Thomas Anwyl Davies, M.D. Oxford Medical Publications. London: Milford, Oxford University Press. 1931. (Pp. viii + 111; 24 figures, 11 plates. 12s. 6d. net.)

" the cervix causes no pain " (p. 47) ; " this . . . converts a gonococcal colony into a pinkish-red colour " (p. 85) ; and there are a number of minor errors, such as labia for labium, infra for intra, inoculation for incubation, while on page 30, 27 chancres on the labia minora should read 47. The author is in error with regard to strepto-pneumococci ; they were described many years ago, certainly as far back as 1918. The statement on page 71 that tertiary syphilis of the cervix gives a negative Wassermann reaction in 65 per cent. of cases will be doubted by most syphilologists.

Dr. Davies's little book is the product of a wide experience, unremitting labour, and very careful observation ; it fills a gap in the literature of syphilis, and will be a revelation to many. There is a very complete bibliography.

A SYNOPSIS OF MEDICAL HISTORY

The study of the history of medicine is still somewhat of a luxury, for it needs some general education, leisure, and a desire to know how things came to be as they are. Hitherto the Dominions have been more concerned with the present and the future than with the past. Dr. BERNARD DAWSON's little synopsis,[4] as the author modestly calls it, is a welcome sign of a change. It is the outcome of a series of lectures delivered to a class of junior medical students in the University of Adelaide, who were so interested that it is stated " all the students attended all the time." Their appetites being thus whetted it would have been well if Dr. Dawson had appended to his history a short list of books in which more detailed accounts of the different periods could be read, books not too abstruse, difficult to read, or expensive, but such as a student might buy for himself or obtain from the university library.

The author, who is a gynaecologist to the Adelaide Hospital, has succeeded in presenting a very complete history of medicine in the short space of 156 pages, beginning with Palaeolithic man and ending with Pasteur and Lister. The story is necessarily brief, but it is well told, and has been made interesting. For the most part it is accurate, and where all is good it may be somewhat ungracious to pick holes, though the holes are so minute that they can easily be darned in any future edition. For instance, on page 55, *rubor*, not *rigor*, is one of the four cardinal signs of inflammation ; on page 90 it is surely wrong to say that Saliceto, living in the thirteenth century, " recognized the venereal origin of syphilis " ; at page 99 St. Bartholomew's Hospital had not the rich founder there attributed to it. Rahere begged the ground on which it stands, and helped to build the original structure with his own hands. It is inaccurate to speak of different *volumes* of the *De Fabrica* of Vesalius, as is done on page 106, because it leads the beginner to think that the great work was issued in separate parts, whilst anyone who has consulted it knows, to his cost, the weight and solidity of the book. The fraternity of surgeons in London never received a charter, as is stated at page 117. The grant of 1492, which is there alluded to, was a grant of arms issued from the Heralds College, while " the writing of Compositions " of the following year was merely a friendly agreement between the Surgeons and the Barbers, which paved the way for their union in 1540.

The book is introduced with a welcome by Dr. H. Woollard, the Elder Professor of Anatomy and Histology in the University of Adelaide. It is illustrated with 31 figures, many of which are taken from the works of Dr. Charles Singer, and there is a satisfactory index.

[4] *The History of Medicine: A Short Synopsis.* By Bernard Dawson, M.D.Lond., F.R.C.S. London: H. K. Lewis and Co., Ltd. 1931. (Pp. xiv + 160 ; 31 figures. 7s. 6d. net.)

BILIARY FUNCTION

In their monograph on the Biliary Functions of the Liver[5] Drs. CHIRAY and THIÉBAUT undertake to consider the whole question of biliary function, and also the tests of hepatic function which may be of clinical application. It is an exasperating book, which might have been very useful if really complete, and it must be admitted that those who are interested in the subject will find Lepehne's monograph a safer guide. The book is ill-balanced, quite undue prominence being given to French work, and important foreign work being often ignored. For example, on page 9, when discussing the question of the origin of urobilin, the authors " are inclined to think " that the intestine is not the sole origin of urobilin, but they omit altogether any reference to the important work of Elman and McMaster (1925-26) in America. With regard to the bile acids, they conclude that " it is now permissible to consider the bile acids as products of oxidation of cholesterol by the liver," but few people will agree that the work of Grigaut in France, or of any other worker, is far enough advanced to justify this conclusion. On page 7, after recitation of the arguments, clinical and experimental, in favour of bile pigments being in large part formed outside of the liver and only excreted by the hepatic cells, Chiray and Thiébaut state as their view that " if the possibility of an extrahepatic formation of bile pigment seems actually demonstrated, its importance in normal conditions seems minimal compared with hepatic pigment formation." This question is still a difficult one, and the evidence provided in recent years is all in favour of the importance of extrahepatic pigment formation, while none has been offered in support of the view held by Chiray and Thiébaut. On the subject of cholesterol metabolism the authors are obviously much influenced by the past work of Grigaut. They point out one fact, too often forgotten by clinicians, that feeding a patient on four eggs a day for a whole week has practically no influence whatever on the cholesterol content of the blood or bile. The authors give a poor view of the functions of the gall-bladder and the modifications undergone by the bile in that organ. There is no reference whatever to the work of Peyton Rous, F. C. Mann, or others in this connexion. They do state that the bile is concentrated " three or four times " in the gall-bladder, but this estimation is now known (Rous) to be much too low, a concentration of ten times being nearer the mark. The remainder of the work calls for little comment, and it is unfortunate that a lack of completeness and balance should have spoiled a useful book.

NOTES ON BOOKS

Some two years ago Professor J. A. GUNN published a small volume[6] into which he had, with great care and discrimination, condensed the essential facts of pharmacology, with the purpose of giving students a short introduction to this subject. The work has evidently met a wide demand, for a second edition has already been required. The shortness of the interval between the two editions has rendered it unnecessary for the author to make many changes. The work has evidently been found of value by a large body of medical students, and thoroughly deserves its popularity, for it provides an excellent introduction to a difficult subject.

The scope and purpose of Dr. OXFORD's book on the *Concise Anatomy of the Foot*[7] is sufficiently indicated in

[5] *Les Fonctions Hépato-Biliaires.* Par M. Chiray et F. Thiébaut. Paris: Masson et Cie. 1930. (Pp. 170. 24 fr.)

[6] *An Introduction to Pharmacology and Therapeutics.* By J. A. Gunn, M.D., D.Sc.Ed. Second edition. Oxford Medical Publications ; London: Milford, Oxford University Press. 1931. (Pp. viii + 233. 5s. net.)

[7] *A Concise Anatomy of the Foot.* By Arnold Whitaker Oxford, M.D. Cambridge: W. Heffer and Sons, Ltd. 1930. (Pp. 65; illustrated. 3s. 6d. net.)

the preface, in which he states that it has been compiled from larger anatomical works for the use of students of the school of chiropody attached to the London Foot Hospital. No doubt it will be found useful by those for whom it is intended. For members of the medical profession it presents in a handy and concise form a statement of what is known about the anatomy of the foot collected from various sources which will be convenient for reference and save the reader the trouble of looking up various sources.

The growing appreciation of the importance of a pure milk supply amply justifies the publication by Mr. A. G. HOUSE of his monograph on the *Bacteriological Control of Milk*,[8] in which a lucid exposition is given of the general and special technique of milk bacteriology. The care and maintenance of glassware and the preparation and standardization of media are fully dealt with. There is an informative note on milk sampling, which precedes a detailed account of the actual tests. The methods of recording results receive proper attention. The book is enhanced by its clear and adequate illustrations, and by the inclusion of an appendix on the furnishing of milk-testing laboratories. We commend it as a reliable guide to the practice of milk bacteriology.

The second edition has been published of the British Red Cross Society's *Cookery and Catering Manual*,[9] edited by Mr. C. H. SENN. The purpose of the manual is to assist members of the Voluntary Aid Detachments who undertake commissariat and kitchen duties, as well as those who act as cooks in hospitals and canteens. Special sections are devoted to invalid and camp cooking, hospital rationing, and the dietetic values of foods.

The ninth edition of Dr. J. COMBY's Medical Consultations for the Diseases of Children[10] contains details for the treatment of over four hundred maladies. Since the book was first published in 1909 the number of treatments thus described has multiplied fourfold, together with an increase in the popularity and usefulness of the book. Dr. Comby's plan is to give first, in detail, the exact treatment of a disorder, and this is followed by a brief summary of the etiological, diagnostic, and prognostic factors of the disease. The list of subjects is remarkably complete, including many tropical disorders, and the advice given is for the most part thoroughly practical.

Aids to Dispensing,[11] by Staff Sergeant G. ASHTON, is a practical guide which has been adopted at the R.A.M.C. School of Dispensing, Crookham, for the use of students. In compiling it the author has had the help and encouragement of many officers of the Corps. It is divided into four sections, devoted respectively to materia medica, official preparations of the *British Pharmacopoeia*, practical dispensing and pharmacy, and poisons.

[8] *Bacteriological Control of Milk*. By A. G. House. With a foreword by Professor R. Stenhouse Williams, M.B., D.Sc., D.P.H., etc. London: Cambridge University Press. 1931. (Pp. 59; 29 figures. 3s. 6d.)

[9] *British Red Cross Society: Cookery and Catering Manual*. No. 5. Edited by Ch. Herman Senn, O.B.E., F.R.H.S. Second edition. London: Cassell and Co., Ltd. 1930. (Pp. viii + 232. 2s. net.)

[10] *Quatre Cent Consultations Médicales pour les Maladies des Enfants*. Par Dr. Jules Comby. 9e édition. Paris: Masson et Cie. 1930. (Pp. viii + 551. 36 fr.)

[11] *Royal Army Medical Corps Aids to Dispensing*. By G. Ashton, Staff Sergeant R.A.M.C. Aldershot: Gale and Polden, Ltd. 1930. (Pp. ix + 232. 6s. 6d. net.)

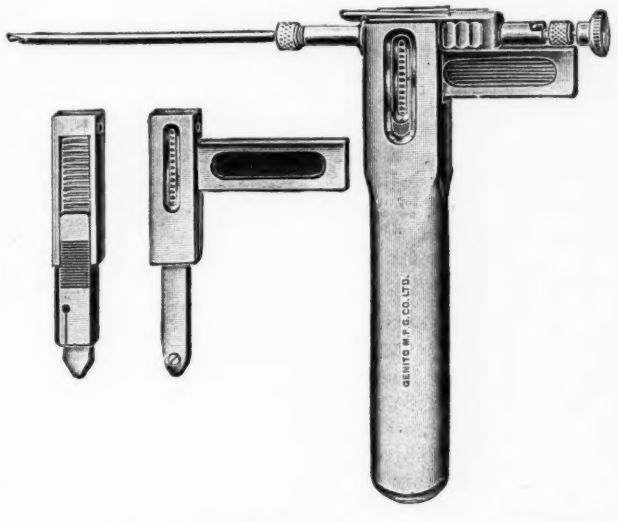
PREPARATIONS AND APPLIANCES

RADON SEED PISTOL

Dr. ROY WARD (Medical Director, Radium Institute, London) writes:

The accompanying illustration shows a radon seed pistol, which has been designed for the Radium Institute by the Genito-Urinary Manufacturing Company, Devonshire Street, W.1.

The handle is made of a hollow aluminium casting, the lower portion of which contains a strong circular spiral spring. The upper third is rectangular in cross section, and forms a chamber which holds the magazine. A slot is cut through the wall on one side, exposing the seeds to view. A sliding lid closes the chamber and keeps the magazine in position. The posterior portion of the lid, which acts as a guide for the stylet, is fitted with a detachable nut to prevent the complete withdrawal of the stylet when the instrument is in use. In alignment with this portion of the lid, and fixed to the handle, is a fitting designed to hold the hollow needles, which are graduated in centimetres. These are clamped to the handle by means of a detachable nut, and may vary in length from 5 to 25 cm. The magazines consist of rectangular metal containers of such dimensions as to fit exactly into the corresponding chamber of the pistol handle. The interior is hollowed out to hold twelve seeds. The upper end is closed, except for a transverse hole, through which the stylet passes. There are two kinds of magazine—one for "permanent"



and one for "removable" seeds. In the magazine for "removable" seeds, the narrow side has a fine slot just wide enough to allow the threads to pass over the thread carrier. This is a thin flat piece of metal attached to the magazine, with a notch at its extreme end, round which the threads are gathered and held in position by a spring cap. A plunger fitted into the seed chamber completes the mechanism. When the magazine is loaded the plunger projects by a distance equal to twelve times the diameter of the twelve seeds, and compresses the spring in the pistol handle by that amount. As one seed after another is pushed out of the magazine, the plunger, forced up by the spring, lifts the seeds into position until all are expelled by the successive to-and-fro action of the stylet.

The instrument has been designed not only for the rapid introduction of radon seeds, but to facilitate their handling and to provide an introducer which may be used for their insertion into any region of the body. For instance, short needles are employed when implanting seeds into the skin, a curved needle for the nasopharynx, and a long needle for the rectum. The handling of these minute radon tubes has always presented difficulties, especially in the case of those fitted with threads. The magazines are loaded in the physics laboratory, thus facilitating their manipulation and reducing exposure risk to a minimum.

ANTIPNEUMOCOCCIC SERUM

Antipneumococcic serum (Felton), Types I and II, refined and concentrated, is now issued by Messrs. Parke, Davis and Company. This product is the result of prolonged researches. Felton devised the method for standardizing the activity of this serum, and also for removing the extraneous proteins. The dosage advised is from 40,000 to 100,000 units in the first twenty-four hours. Early treatment is essential, and Type I infections respond more quickly than do Type II. A dose of 10,000 to 20,000 units is recommended on the second day. Serum reactions can be controlled by giving desensitizing doses and by adrenaline. This serum is attracting general interest at present, because very favourable results have already been reported in the treatment of Type I lobar pneumonia.

THE LÜBECK CATASTROPHE

A GENERAL REVIEW

In the early part of last year there occurred at Lübeck in Germany one of those happily infrequent disasters which have from time to time accompanied the use of prophylactic vaccination. The vaccine used on this occasion was prepared from the B.C.G. strain of tubercle bacillus, which, as is well known, has, as the result of subculture for several years on a glycerin-bile-potato medium, become almost entirely avirulent to man and animals. During a period of two months, stretching from February 24th to April 25th, 1930, this vaccine was administered to 249 newly born infants. Of these many developed acute tuberculosis during the next few weeks and died; others developed subacute lesions, while a considerable proportion remained perfectly well. The total death roll up to January 29th of this year was seventy-five. Inquiry into this catastrophe was rapidly set on foot, and papers have been published, particularly by Professor Ludwig Lange[1 2] of the Reich Health Office, and Professor Bruno Lange[3 4] of the Robert Koch Institute in Berlin, dealing with the results of the investigation. Pending the issue of an official report containing all the findings, it is perhaps worth while summarizing the knowledge which has so far been gained of this most regrettable incident.

PREPARATION AND DISTRIBUTION OF THE VACCINE

On July 27th, 1929, a strain of B.C.G. was sent from the Pasteur Institute in Paris to Dr. Altstaedt of Lübeck, who handed it to Professor Deycke of the General Hospital. Some time after its arrival the culture was inoculated into animals, and apparently proved to be avirulent. According to Calmette[5] the same strain was also sent to Mexico and to Riga, and the following subculture was used for the preparation at the Pasteur Institute of a vaccine which was administered to 3,016 infants without any detrimental result. There is therefore very little doubt that the culture originally sent from Paris was avirulent.

It has been the practice of Calmette and Guérin to keep their B.C.G. strain in the laboratory on a glycerin-bile-potato medium, and for the preparation of vaccine to grow it in Sauton's liquid medium. Deycke, however, after using the potato medium for a short time, subcultured his strain on egg medium, with or without the addition of haematin, and used these solid cultures for the subsequent preparation of his vaccine.

Before the receipt of the B.C.G. strain, Deycke was in possession of a number of cultures of tubercle bacilli, but owing to an accidental rise in the temperature of the incubator in which they were kept these were all killed.

For a time, therefore, the B.C.G. strain was the only culture of tubercle bacilli in the laboratory. In September, 1929, however, a strain, reputed to be of human type, was obtained from Kiel. This strain was isolated in 1927 from a child with hip-joint disease at the Charité Hospital, Berlin, and was handed over in 1928 to the Robert Koch Institute, where it was given the label H29; in April, 1929, a subculture was forwarded to the Hygienic Institute at Kiel. In Deycke's laboratory the B.C.G. strain was kept in an incubator in a small room and was subcultured on a solid medium; the Kiel strain was kept in an incubator in a large room, and was subcultured only on a fluid medium. The actual preparation of the vaccine was entrusted to a woman assistant, who had been with Deycke for seventeen years.

On December 9th, 1929, a preliminary inoculation was made of one child, which had been removed at birth from a mother suffering from open tuberculosis. A second child was vaccinated on December 30th, 1929. The first child developed cervical lymphadenitis, which was attributed to congenital infection, and inoculation of an excised gland into a guinea-pig gave rise to general tuberculosis. The second child remained well, but developed a positive tuberculin reaction. One further preliminary inoculation was made on February 10th; this child subsequently developed mild symptoms of tuberculosis. The main series of vaccinations was commenced on February 24th, 1930, and between this date and April 25th 249 infants, about 50 per cent. of those born in Lübeck during this time, were inoculated, the usual three doses being given in the first ten days of life. Though suspicions were early aroused by the clinical condition of the vaccinated infants, nothing definite occurred till April 17th, when a child, vaccinated thirty-three days previously, died; unfortunately, permission for a necropsy was forbidden. On April 20th a second child died, and was found post mortem to have generalized tuberculosis; since the lesions were most marked in the lungs, it was concluded that the child had been infected by the respiratory tract from its mother, who was suffering from tuberculosis, though not of the open type. It was not till the third and fourth children died, on April 25th and 26th respectively, that the pathogenic nature of the vaccine was fully realized, and further distribution was stopped. At this juncture Professor Deycke, in order to avoid any possible error, destroyed all the remaining vaccine in the laboratory, together with the existing subcultures of the B.C.G. strain. This unfortunate step, which was clearly open to more than one interpretation, added greatly to the difficulties of the subsequent investigation.

TIME DISTRIBUTION OF THE DEATHS

According to Professor Bruno Lange,[4] on October 18th, 1930, the figures were as follows. Of 252 inoculated children 67 had died from tuberculosis; 5 children had died from other causes, but in 2 of them tuberculosis was found; 21 children still living were severely ill, and 87 slightly ill; 72 children were apparently well. According to Professor Calmette,[6] in an article published on January 24th, 1931, the death roll had mounted to 75. One of the remarkable features of the deaths was their peculiar time distribution in relation to the issue of the vaccine. They may be divided into the following periods (see table).

Morbidity and Mortality According to Position on October 18th, 1930

Period	No. of Vaccinated Infants	Died from Other Causes	Remained Well	Slightly Ill	Severely Ill	No. Dying	Percentage Dying
9/12/29 to 10/2/30	3	0	1	2	0	0	0
24/2/30 to 27/3/30	129	1	10	40	17	61	47
28/3/30 to 7/4/30	32	2	20	9	1	0	0
8/4/30 to 10/4/30	21	0	6	10	1	4	19
11/4/30 to 25/4/30	67	2	35	26	2	2	3
Total ...	252	5	72	87	21	67	27

It will be noted that the highest mortality followed the vaccine distributed in the last week of February and the first four weeks of March; subsequently came a period of ten days in which the vaccine was comparatively innocuous; then there was a short period of three days during which it again proved pathogenic; and finally, a period lasting for a fortnight characterized by a marked fall in its virulence. In the cases that proved fatal the time elapsing between administration of the vaccine and

death varied considerably ; figures for the complete series of cases have not been published, but the average period seems to have been about twelve weeks, with a minimum of thirty-three days. As regards sex, the male infants suffered more severely than the female ; thus, of 139 boys vaccinated 38, or 27 per cent., died ; of 110 girls vaccinated only 17, or 15 per cent., died.

CLINICAL AND POST-MORTEM FINDINGS

According to Dr. M. Klotz,[7] director of the Children's Hospital at Lübeck, the early symptoms observed were failure to thrive in spite of breast-feeding, mild febrile attacks, vesicular eruptions, and swelling of the cervical glands. Later, in the more severe cases, the cervical glands enlarged to the size of hen's eggs, and caused interference with respiration and swallowing ; and there developed an extreme degree of anaemia, high intermittent fever, prolonged vomiting, profuse diarrhoea, and very severe meteorism, generally localized to one or two parts of the abdomen, and found at necropsy to result from innumerable strictures of the gut with consequent strangulation through adhesions and enlarged glands. Tubercle bacilli were found without difficulty in the vomit, sputum, and stools.

Post mortem the picture was uniformly that of the type of tuberculosis commonly found after alimentary infection. Besides involvement of the intestine, with numerous ulcers and strictures, and enlargement of the mesenteric glands, the lungs were infiltrated, often one or more lobes being affected, and the infiltrated areas looking like Perlsucht nodules. The glandular enlargement was enormous. Purulent discharge sometimes flowed from the nose, and ulcerating skin rashes were occasionally found. Pleural and peritoneal exudates were not uncommon. But, strangely enough, no meningitis or cerebral tuberculosis was seen. The condition of the bronchial glands is not mentioned.

EXAMINATION OF THE AVAILABLE CULTURES

Considerable difficulty was experienced in obtaining suitable cultures for examination, since the B.C.G. subcultures and the vaccine in Deycke's laboratory had been destroyed ; the following material was ultimately collected, and examined by Professor Bruno Lange.

1. Organs from four infants who had died after vaccination, together with a culture obtained by Deycke from a cervical gland of a sick infant. The organs, when inoculated into guinea-pigs, gave rise to tuberculosis of a type considerably less severe than that normally following the injection of a fully virulent mammalian strain. Three strains recovered from the organs gave rise to a mild, fairly generalized tuberculosis, with a tendency to retrogression in animals injected with small doses. Subcutaneous inoculation of rabbits with organ suspensions led to nothing more than a local lesion. Intravenous inoculation with a pure culture (dose not stated) led in one rabbit killed eight weeks later to moderately extensive lesions in the lungs, and to a few submiliary nodules in the spleen, and in another rabbit killed five months later to several caseous areas in the lungs, up to a bean in size, to numerous miliary caseous tubercles in the liver, and to one large tubercle in the cortex of the right kidney. Culturally the three strains from the organs gave a moist, smeary growth on serum egg medium, typical neither of the human nor of the bovine type, though more closely resembling the former. Lange is unable to come to any definite conclusion as to the type of tubercle bacillus in these cultures. The strain recovered by Deycke behaved similarly to the three organ strains.

2. A culture isolated by Deycke on April 17th, 1930, from a guinea-pig injected on March 6th with a culture of B.C.G. ; this is referred to as the B.C.G. guinea-pig passage strain. According to Deycke four guinea-pigs were inoculated with the B.C.G. strain, and four more with material from a cervical gland of a vaccinated infant. Both sets of animals were injected six weeks later with 0.5 c.cm. of tuberculin, with the result that all of them died. At post-mortem, however, while three of the guinea-pigs inoculated with the glandular material showed generalized tuberculosis, the four guinea-pigs inoculated with B.C.G. showed lesions confined to the great omentum. Examination of the guinea-pig passage strain by Lange proved that it was capable of producing fairly severe progressive tuberculosis in guinea-pigs, while proving avirulent to rabbits. Culturally it resembled the human type.

3. A culture found in the middle of May, 1930, in the laboratory of the Lübeck Hospital, and labelled " B.C.G. 14.3.30." The sister cultures had probably been used about the end of March or beginning of April for the preparation of vaccine. Two subcultures of this strain, which is referred to as B.C.G.143, were also found. On subcutaneous injection of guinea-pigs it gave rise to no more than a local lesion, with some involvement of the regional glands, and even large doses failed to set up progressive generalized tuberculosis. To rabbits injected subcutaneously with 10 mg. and intravenously with 0.01 mg., it was completely avirulent. Culturally, it behaved more or less like a bovine strain, though growing freely on glycerin agar and glycerin broth. Lange concludes that it was probably a B.C.G. strain, though rather more virulent than the B.C.G. strain in the Robert Koch Institute, which was tested for comparison. It is probable, he considers, that not all strains of B.C.G. given out by the Pasteur Institute have been of the same degree of avirulence.

4. The culture received by Deycke from Kiel in September, 1929. This strain, which had come from the Robert Koch Institute in Berlin and was reputed to be of human type, proved to be of attenuated virulence for guinea-pigs, and to be almost avirulent for rabbits. Culturally it was of human type, but Lange considers the pathogenicity experiments to be too ambiguous to enable a definite diagnosis of type to be made.

5. A culture of the same strain as No. 4, but kept in the Robert Koch Institute since 1928. This strain, which was labelled H29, had been isolated in 1927 from a child with hip-joint disease in the children's clinic of the Charité Hospital, Berlin, and had been handed over to the Robert Koch Institute in 1928. In April, 1929, it was sent to Kiel, and in September, 1929, a subculture was forwarded from Kiel to Lübeck. Professor Opitz, who originally isolated it, suspected it of being bovine in type. When tested in 1930, it proved to be of definitely attenuated virulence for guinea-pigs. Rabbit inoculations gave inconstant results ; some rabbits developed tubercles in the lungs, one showed no disease, and one died with numerous tubercles in the lungs, kidneys, and liver. Culturally it resembled the human type, but Lange does not decide whether it was of human or bovine type.

Other material was collected and examined by Professor Ludwig Lange at the Reich Health Office. A full report of his investigations has not yet been published, but according to information given to the press by the Ministry of the Interior in July, 1930,[8] the following material was examined.

1. A strain of B.C.G., which since its arrival at Lübeck from Paris had been kept on a fluid medium. This strain, which was not used for vaccine preparation, proved avirulent to guinea-pigs, behaving, therefore, like a typical B.C.G. strain.

2. Two cultures of B.C.G., one corresponding to a batch of vaccine that gave rise to little disease and no deaths ; and one put up during the second half of April, and never used for vaccine preparation. Both of these cultures proved avirulent to animals.

3. The remains of four batches of vaccine, apparently in the possession of midwives. Two of these batches

corresponded to a high morbidity and mortality. They are still under examination, but according to Neufeld[10] both virulent and avirulent bacilli were recovered.

4. A culture that had been isolated by Deycke from a guinea-pig inoculated on March 6th, 1930, with a presumably pure culture of B.C.G. on a solid medium. This culture, which had been put up in Lübeck on April 17th, was found in the Reich Health Office laboratories to be highly virulent for guinea-pigs and only slightly virulent for rabbits, behaving, therefore, like a human type.

5. A guinea-pig inoculated by Deycke on April 17th with another, presumably pure, culture of the B.C.G. strain, was taken to Berlin, and when killed 109 days after inoculation was found to have extensive tuberculosis.

DISCUSSION

Numerous hypotheses have been put forward by different workers to explain the virulence of the Lübeck vaccine, and it has even been suggested that, in order to increase the immunizing effect of the B.C.G. strain, small doses of virulent tubercle bacilli were intentionally added to the vaccine (Ascoli[9]). The real point at issue is whether another strain of tubercle bacillus became mixed with, or substituted for, the B.C.G. strain in the preparation of the vaccine, or whether the B.C.G. strain actually underwent a spontaneous increase in virulence.

In considering the first possibility it is necessary to remember that in the laboratory at Lübeck, throughout the time at which the vaccine was prepared, there was only one other strain of tubercle bacillus ; that this strain, which was either of attenuated human or attenuated bovine type, was kept in an incubator in a different room ; and that while the strain of B.C.G. used for vaccine preparation was subcultured on a solid medium, this strain was subcultured on a fluid medium. Confusion of the two cultures in these circumstances does not, on *a priori* grounds, seem to be very probable. Professor Bruno Lange, who upholds this hypothesis strongly, appears to be influenced in his judgement chiefly by a strong prejudice against believing in the possibility of a spontaneous reversion to the virulent form of the B.C.G. strain, and partly by the recovery from fatal cases of cultures more or less resembling in virulence the strain of reputed human type received by Deycke from Kiel.

In this connexion it may be remarked that at the outset of the inquiry great hope was entertained of the results of typing the bacilli recovered from the vaccinated cases. The B.C.G. strain was of bovine origin ; the Kiel strain was supposed to be of human type. Clearly, if one or other type was found in the organs of infants who had died after vaccination, it would be reasonable to assume that it was the corresponding type which had been present in the vaccine. Unfortunately, however, this hope was doomed to failure. In the first place it was forgotten that the bacteriological method of typing tubercle bacilli was capable of giving clear-cut results only with strains more or less freshly isolated from the animal body, which had not been accustomed to growth for long periods of time on artificial media. It so happened, however, that both the B.C.G. strain and the Kiel strain were old laboratory cultures, and could not, therefore, be expected, after a single passage through the body, to behave like typical strains. In the second place, it is not by any means certain that the Kiel strain was of the human type. Professor Opitz suspected it of being of bovine type, and Professor Bruno Lange was unable to determine whether it was of human or bovine type. The argument has been put forward that, because this strain was avirulent to rabbits, it must necessarily have been of human type ; but since its virulence for guinea-pigs was attenuated, it is impossible to lay any stress on this point. Many cultures of bovine type, which are becoming attenuated, behave exactly in this manner, losing their virulence for the rabbit before that for the guinea-pig. It is therefore clear that no definite conclusion can be reached whether the strains isolated from the vaccinated infants were identical with the Kiel strain. Professor Bruno Lange regards this as probable, but he is admittedly unable to prove it conclusively. He is supported, however, in his general inference by Professor Neufeld,[10] who believes that the Kiel strain was incorporated in the vaccine.

The other hypothesis, involving the spontaneous reversion of the B.C.G. strain to the virulent state, has been put forward by numerous workers both in Germany and abroad, and is sponsored by no less an authority than Professor E. Friedberger.[11] It is unnecessary to recapitulate here the experimental evidence that has been obtained in various countries in favour of this possibility. Experiments by absolutely independent workers have shown that the virulence of the B.C.G. strain is not fixed, but that under certain cultural conditions, either *in vitro* or *in vivo*, it may be rendered more or less completely virulent to animals.

To assert, as Calmette does, that in all these experiments the culture has become contaminated with another strain of tubercle bacillus is to offer an excuse that becomes increasingly tenuous with each additional piece of evidence brought forward. The fact that when kept on a glycerin-bile-potato medium, and when given to newborn infants, it proves to be avirulent, does not in any way disprove the possibility of its becoming virulent when exposed to other conditions. There is rapidly growing up a mass of careful observations, made on bacteria of different species, which indicate that the cultural appearances, the antigenic structure, and the virulence of an organism may be altered by a number of different environmental factors, and no one who was not completely ignorant of recent work in the field of bacterial variation would dare to maintain that a given culture was of fixed and immutable virulence.

In favour of the second hypothesis it has been pointed out by Friedberger and others that the Lübeck strain of B.C.G. was subcultured, not on glycerin-bile-potato, but on an egg medium ; and these workers have suggested that growth on this medium may have led to an increase in its virulence. So far no experimental evidence has been adduced to support this suggestion, and the few experiments made by Saenz[12] to test it have proved negative. The results obtained by examination of the various cultures at Lübeck can equally well be explained by assuming that the B.C.G. strain had acquired a certain degree of virulence as that it had become mixed with the moderately virulent Kiel strain.

Frankly it is impossible, on the basis of these results, to decide which of the two hypotheses is correct. In the absence of definite evidence it is wise, though unsatisfying, to maintain an open mind as to the real cause of the Lübeck catastrophe. The moral, however, is plain. The preparation of vaccines for large-scale distribution should be undertaken only under the most rigidly controlled conditions in laboratories set aside for this and for no other purpose.

REFERENCES

[1] Lange, Ludwig: *Zeit. f. Tuberk.*, 1930, lvii, 305.
[2] Idem: *Klin. Woch.*, 1930, ix, 1105.
[3] Lange, Bruno: *Deut. med. Woch.*, 1930, lvi, 927.
[4] Idem: *Zeit. f. Tuberk.*, 1930, lix, 1.
[5] Calmette, A.: *Presse Méd.*, 1930, xxxviii, 748.
[6] Idem: *Med. Welt*, 1931, v, 113.
[7] Klotz, M.: Ibid., 1930, iv, 732.
[8] *Deut. med. Woch.*, 1930, lvi, 1625.
[9] Ascoli, A.: Ibid., 1930, lvi, 1160.
[10] Neufeld, F.: Ibid., 1930, lvi, 2056.
[11] Friedberger, E.: Ibid., 1930, lvi, 1300.
[12] Saenz, A.: *C. R. Soc. de Biologie*, 1931, cvi, 156.

British Medical Journal

SATURDAY, JUNE 6th, 1931

HAEMOLYTIC JAUNDICE

The interesting features of this remarkable familial and congenital disease have been prominently brought before our readers in the Hume Lectures delivered at Newcastle-upon-Tyne by the President of the Royal College of Physicians. Lord Dawson's special interest in this group of cases is well known to his fellow physicians in this country, and he has already described to a limited audience, at meetings of the Association of Physicians, some portions of his work. In the present lectures he collects the results of his observations on forty cases, and is thus able to emphasize most of the well-known clinical and pathological features presented, and to give us a very complete picture of the disease and its proper method of investigation and treatment. In the preamble to his first lecture (printed in our last issue) he runs over the facts that have been discovered in the past decade concerning bile-pigment metabolism, without a full knowledge of which the study of haemolytic jaundice is impossible. He seems to adopt as most suitable the recent classification of icterus by Rich into " retention " and " regurgitation " jaundice —a grouping largely founded on the results of the van den Bergh test. But in the opinion of many interested in the subject a classification on so narrow a basis is not to be preferred to other and simpler classifications of jaundice.

The two most characteristic and well-known phenomena of the disease are its familial incidence and the undue fragility of the red blood corpuscles to varying concentrations of sodium chloride in solution, when compared with the red cells of normal individuals. This undue fragility of the red corpuscles, first pointed out by Chauffard of Paris in 1907, is a remarkable phenomenon. Lord Dawson is fortunate in being able to reproduce records of his cases by the graphic method elaborated by E. ff. Creed of King's College Hospital. This method, we are glad to see from the bibliography, is " about to be published." It is a technique already well known by word of mouth to a number of clinical pathologists in London, and a full publication by its author has been long awaited. It is bound to find its way at once, as the accepted standard method, into textbooks of clinical pathology. Lord Dawson rightly points out that undue fragility of red corpuscles is not observed in *all* cases of the disease, though it is found in by far the majority. This is a curious and interesting point, perhaps too apt to be lost sight of ; but all it probably means is that haemolysis of red cells by solutions of sodium chloride is an artificial and arbitrary test of some abnormality of the red corpuscles, the exact nature of which is unknown to us. In cases treated by splenectomy the undue fragility to the saline test seldom disappears altogether ; it may be distinctly modified in the right direction in some cases, but is often quite unchanged. That it may persist unaltered for more than forty years, in a patient cured of the disease by splenectomy, is well shown by the famous case operated on by Sir Spencer Wells, to which we refer again later.

The family groups of cases recorded by Lord Dawson are especially interesting, since in their graphic description he is able to bring out the principal points in the symptomatology and complications of the disease. This is an important section of these lectures for the physician who has to advise on the treatment of the recognized disease. He must know well all the possible complications and their incidence, so that he may put the case for splenectomy fairly and squarely before the patient or the parents. These complications are dealt with in the first part of Lord Dawson's second lecture, printed in our opening pages to-day. In his series of forty cases, twelve fatalities have occurred, only one of these being due to the surgical risk of splenectomy. Eight of the patients died from acute haemolytic anaemia, two from cholangitis complicated by anaemia, and two from intercurrent disease. The eight deaths due to what are sometimes called " acute blood crises " are noteworthy in this series because of their frequency. It must be remembered, however, that this haemolytic disease shows marked periodicity in its intensity. It waxes and wanes, and a period of acute haemolysis, with the blood picture associated with a " crisis," with rapidly increasing jaundice and acute and great splenic enlargement, is often followed by a long period in which all these signs are much modified. The spleen shrinks with great rapidity, the jaundice may disappear, and the anaemia diminishes. It has perhaps not been sufficiently realized in the past how important and how dangerous for life these periods of active haemolysis may be. That biliary complications are apt to ensue is of course due to the greatly increased bile-pigment production during the active periods of haemolysis. Two fatal cases of cholangitis and anaemia are referred to, but the occurrence of pigment (bilirubin) gall-stones and even of acute biliary colic is more commonly described in the literature than the lecturer's personal experience might indicate. All of these complications offer the strongest arguments in favour of splenectomy at an early age, and, if possible, at a time when the patient is relatively well, since they never recur after the spleen has been removed.

Haemolytic jaundice, as seen in elderly people who have suffered from the disease since childhood, presents some particular features of interest, which are very well brought out in these lectures by the histories of two sisters aged 53 and 55. One sister died at 53 from acute anaemia, showing that survival to middle age is no bar to a fatal haemolysis. The other, aged 55, has led, and still leads, an active life, with a red blood cell count now below 3 millions and a haemoglobin percentage of 32. This latter case, indeed, shows how the human body may adapt itself by long practice

to what would ordinarily be considered very adverse conditions. On the face of it, however, the risk of splenectomy in early life must nowadays be considered small in comparison with the continued risks these two sisters have run throughout their lives. One very striking historical case is referred to in detail by Lord Dawson—the patient "Fordal," operated upon in 1887, when aged 27, by Spencer Wells, who successfully removed a spleen weighing over eleven pounds. This patient is still alive, and well for her age, forty years after the operation; it is interesting that her red blood corpuscles are still unduly fragile in the test saline solutions. Her only son, moreover, developed the disease, and has been operated on twice—first for removal of pigment gall-stones, and later for splenectomy, with complete cure resulting.

In his second lecture Lord Dawson gives an account of the morbid anatomy and histology of two fatal cases. Finally, in this lecture he considers the old but none the less interesting question whether there is an acquired form of haemolytic icterus in addition to the common congenital variety. Most workers, after weighing all the recent evidence, will agree fully with Lord Dawson that the more carefully the cases are investigated, both individually and from the family standpoint, the more does the probability of a genuine "acquired" form sink into the background. All our readers will agree that the lecturer is to be congratulated on the important observations he has made on this long series of cases, and we must not omit to mention the excellence of the coloured drawings with which his second lecture is illustrated. The clinical features of haemolytic jaundice are now well known and amply documented. Large monographs (for example, Meulengracht's) have been written upon it from every clinical and pathological angle. The main puzzle remains, the first and so far the only clue to which was given by Chauffard in 1907, when he pointed out that the red blood corpuscles in this disease begin to lake in higher concentrations of salt solution than do normal healthy red corpuscles. Why the increased haemolysis, and why its curious periodicity? These two questions remain unanswered.

THE PREVENTION OF SMALL-POX

We print elsewhere (at page 995) a short précis of the memorandum on small-pox prevention which has just been issued by the Ministry of Health. We hope that this summary will stimulate our readers to peruse the memorandum itself, which is, in our opinion, a masterly document, an example of the way in which a State paper dealing with a very difficult and highly controversial subject should be composed.

The literature of the vaccination controversy is interesting, if not particularly agreeable, reading, and questions once so keenly debated respecting the scientific value of Jenner's own work, and the influence of vaccination upon the epidemiology of small-pox in the first half of the nineteenth century, are only of historical interest. Hardly any men of science now doubt that vaccination is, as the memorandum asserts, an efficient if not infallible prophylactic against taking small-pox if exposed to risk, or against dying from small-pox if attacked. But few epidemiologists believe that the vicissitudes of epidemic small-pox in the last 130 years are mere reflections of variations in the communal or individual resort to vaccination. Further, the experience of the last quarter of a century has done something to shake the conviction that a community such as ours, wherein the proportion of the whole population at any given time who have been recently vaccinated is far short of 25 per cent., is likely to be ravaged by epidemics of malignant small-pox. Most of us might indeed hold that much suffering and some deaths would have been avoided if our people had been as docile as the Germans of the generation of the years immediately prior to the war and had submitted to a system of really compulsory vaccination and revaccination; but it would be foolish to shut one's eyes to the fact that only some revolution of public feeling, leading to a dictatorship like that in Italy, could produce an effective compulsory system of vaccination and revaccination.

We have, indeed, to choose between a sham system of compulsion and an appeal to reason. The memorandum sets out the alternatives judicially. Perhaps we might put the case made for an appeal to reason in this way. Every year the public health services and the medical profession as a whole are persuading the general public to adopt certain habits and to abandon other habits by convincing them that such changes are beneficial. Much is no doubt effected by mere authority. All men and women, even the English, however much they may abuse officials and doctors in the mass, are inclined to do what the individual official or the individual doctor recommends without being very curious as to the reasons for his advice. Something, however, must be allowed to reasonable conviction and hardly anything to legal sanctions. We have little doubt that if the legal sanctions were abolished and small-pox prophylaxis were treated from the educational point of view, as child welfare is now treated, the vaccinal state of the community would not be worse than it is, but better. We do not mean that the organization of an educational campaign will be easy; it will be a difficult undertaking. The cause of vaccination has been far more damaged by the rashness of its advocates than by the skill of its enemies. The tone and temper of this memorandum should be contrasted with that of Simon, issued by the predecessor of the Ministry of Health more than sixty years ago. *This* memorandum, and not the dogmatic rhetoric of our predecessors, should be a model for those who have the duty of educating the public.

We have left little space for reference to the purely scientific aspects of the memorandum. One, however, may be noticed. Evidence is submitted that variola minor, after it has gained a foothold in a community,

increases more or less steadily for five to six years and thereafter declines. It is an interesting question to consider whether the decline is due to a critical level of herd immunity having been reached by means of subclinical infections. There is experimental evidence that in virus diseases the process of immunization is different from that obtaining in at least some bacterial infections; it seems probable that in variola minor natural immunization may be very effective, and the future course of events in districts which have been heavily infected will be worthy of consideration. Both from the point of view of the administrator and from that of the pure epidemiologist this memorandum is a valuable document, which reflects great credit upon its author or authors.

THE EASTBOURNE PROGRAMME

Arrangements are now well advanced for the Annual Meeting of the British Medical Association, to be held at Eastbourne towards the close of next month, under the presidency of Dr. W. G. Willoughby. The occasion is noteworthy for two reasons. In the ninety-nine years since its foundation the Association has never before met within sight of Beachy Head; nor has it had as its President a medical officer of health. The first is perhaps a mere accident of geography; but the second marks a stage in the reintegration of medicine which may signify a good deal to the student of professional history in these islands.

Before the Annual Meeting proper opens, with full ceremony, on the afternoon of Tuesday, July 21st, the Representative Body will have sat in session for four days and worked through a long agenda of medico-political and administrative business based on the Annual Report of Council. On the social side there can be no doubt that Eastbourne will live up to its reputation as a centre of health and hospitality, and a warm welcome is assured from the mayor and corporation, from the local profession, and from the townspeople generally. The provisional time-table for the whole meeting is printed in our *Supplement* this week, together with the programmes of the fourteen Scientific Sections, which meet on July 22nd, 23rd, and 24th. A casual glance through the list of set debates and papers gives the impression that the sectional officers have held a just balance between the claims of every-day clinical work and the desire of the specialist for opportunities to cultivate his own arcana. They have also kept in mind, once again, the advantage of concentration upon a limited number of topics, though, taken as a whole, the fourteen programmes cover a very wide field of medical science and practice. It will be seen that every Section has arranged this year for one or more discussions on matters of direct interest to the general practitioner, and that several of the thirty-six discussions—for example, in the Obstetrical Section on breech labour, and in the Pathological Section on milk-borne diseases—are to take the form of comprehensive reviews in which each principal speaker is allotted one subdivision or one aspect of the subject.

Every member who notifies his desire to visit Eastbourne six weeks hence, and is able to obtain rooms at that busy season, can look forward to an agreeable and interesting time. Some of the most successful Annual Meetings of the British Medical Association have been held at South Coast resorts, and, indeed, there is a quality in sea air that lends invigoration to congress proceedings. London has not this advantage, and it must hope by other means to rise to the great occasion next year, when the Association, after a pious pilgrimage to its birthplace, Worcester, celebrates its centenary in the metropolis of the British Empire under the presidency of Lord Dawson.

RECENT RESEARCH ON VITAMINS

The first edition of *The Vitamins*, by Professor H. C. Sherman and Dr. S. L. Smith, appeared in 1921, and a second edition[1] now follows after an interval of ten years. This interval represents half the present age of the subject, and the opportunity may be taken to consider what general trends are revealed by a comparison of the two editions. The present edition has been almost completely rewritten, but it is interesting to note how many of the facts of outstanding physiological importance were already established in 1921. Only one new vitamin has been discovered since that date—namely, vitamin E—and this is distinctly less important than its associates. Most of the principal physiological actions of the other five vitamins were known in 1921, and the two most significant new facts that have been added are the identification of the anti-pellagra vitamin with the water-soluble vitamin B_2 or G, and the fuller knowledge of the anti-infective action of vitamin A. On the other hand, chemical knowledge of the vitamins has been revolutionized during the last decade. Practically nothing was known in 1921 of the chemistry of the vitamins, and they were regarded as being substances as mysterious and elusive as the bacterial toxins. To-day the chemical nature of three of the vitamins is apprehended with some degree of certainty. We know that vitamin A is elaborated by the body from the plant pigment carotene, and that vitamin D can be produced from ergosterol by irradiation with ultra-violet light either *in vitro* or *in vivo*. Finally, vitamin B_1 has been isolated in crystalline form; its probable chemical structure is known, and attempts have been made to synthesize it. The chemical nature of the other three vitamins is less well understood, but great advances have been made in their concentration and isolation, and the discovery of their constitution can be only a matter of time. The centre of interest in vitamin research has therefore shifted from the physiological to the chemical aspect. During the years prior to 1921 a new field of physiology was rapidly explored and the general physiological actions of the vitamins were established, whereas during the last decade the chemistry of the group has been partly worked out. One of the chief results of the chemical work has been to show that there is little or no chemical relationship between the members of this class, which were grouped together by the physiologists.

[1] *The Vitamins*. By H. C. Sherman and S. L. Smith. Second edition. American Chemical Society Monograph Series. New York: The Chemical Catalog Co., Inc. 1931. (6 dollars.)

There was indeed no reason to expect any close relationship, but the extreme diversity of their chemical structure is rather remarkable. This diversity has, of course, been an embarrassment to Professor Sherman and Dr. Smith, for, as they point out, there is little or no relation between the chemistry of the different members of the class that they discuss, and yet the greater portion of their monograph is occupied with this subject. It seems probable that future monographs will be limited to a single vitamin, although this method will be rendered difficult by what may be called the tendency to fission shown by vitamins. Vitamin B has been divided into two clearly distinct factors, and there is already evidence for the existence of three other subdivisions. The bulk of the literature will, however, automatically impose a limit on the scope of monographs on vitamins. In their 1921 edition the authors brought together 1,000 selected references, and it was felt that the subject was even then in danger of being crushed by the weight of its own literature. The 1931 edition ends with a bibliography of 3,000 references. This occupies 180 pages, and, together with the index, constitutes two-fifths of the volume. The day seems not far distant when the production of a monograph will consist in writing a bibliography and adding the text. Meanwhile, Professor Sherman and Dr. Smith are to be congratulated on the skilful manner in which they have dealt with this unwieldy mass of literature, and have produced a clear and authoritative account of all the chief work done on the subject until the middle of last year.

THE WAKING HOUR IN HOSPITAL

The hour at which patients in hospital are aroused in the morning has been brought before the public more than once during recent months. In 1929 Middlesex Hospital announced its introduction of the 7 o'clock breakfast, with the rule that no patient was to be washed or disturbed beforehand unless for urgent medical reasons. In the spring of last year the Central Bureau of Hospital Information published a memorandum, which was the subject of comment in these columns (May 3rd, 1930, p. 832), summarizing the practice in this respect at sixty-three large provincial hospitals. In forty-five of these institutions the work in the wards began earlier than 6 a.m., and in thirteen others precisely at that hour. More recently a report was presented to the London County Council by its Central Public Health Committee on the subject as it related to former Poor Law hospitals which had newly come under the control of the Council. In ten out of the twenty-eight waking took place before 5 a.m., and in the others, between 5 and 6. It was then laid down that, as far as practicable, in London county hospitals the patients should not be aroused, except in special circumstances, before the hour of 6. King Edward's Hospital Fund for London now publishes the report of a committee, of which Mr. Walter G. Spencer was chairman, summarizing the information received from the Fund's visitors as to the hours of waking in the 141 hospitals in and around the metropolis which the Fund assists. In four of these the earliest hour mentioned by the visitors is 4 to 4.45 a.m. ; in sixty-two it is between 5 and 5.45 ; in forty-four it is 6 ; and in fourteen later than 6. The few remaining hospitals are mostly small institutions for children and babies, where there is no fixed hour. At six out of the twelve teaching hospitals 6 a.m. is the regular hour ; at four it is between 5 and 5.45, and at the other two it is up to 6.45. At the nine maternity hospitals the hour is between 5 and 6. The announcement of these early hours—although in London the hour of waking is, on the whole, later than in provincial hospitals—has been the subject of some indignant comment in London newspapers. We fully agree that it is most undesirable by adherence to arbitrary rules to rob the patient of early morning slumber. Even to the healthy person, with the day's work in front of him, the reactions to the morning call, the toilet, and the breakfast are delicate affairs which may affect the pattern of the day ; much more so in the case of the person made unduly sensitive to small things by physical debility and withdrawal from active life. But the matter is not quite so simple and manageable as some critics of hospital administration suppose. Various processes have to be undertaken in the wards, such as the washing of patients, the making of beds, and the serving of food, and the time occupied differs with the case. A sufficient interval must elapse between breakfast and the light mid-morning lunch. Work in the wards must be completed before the visits of the medical officers, which usually begin at 10 o'clock in London, though an hour as early as 9 is mentioned in the provinces. All these matters are open to fresh adjustment, but a larger consideration is the division of work between the night and day nursing staffs. As it is, the staffs overlap in the morning usually for an hour or an hour and a half. It has been said, in defence of early waking, that hospital patients are a class accustomed to early rising, so that any hardship is minimized. But apart from the fact that it is one thing to rise to a day's labour or a day's play, and quite another thing to awake to a day's quiescence or immobility, we doubt very much whether, now that the factory sirens sound at 8 or after, the hour of rising of working-class people is anything like as early as 6, to say nothing of 5. The exigencies of a great institution have, however, to be borne in mind, and certain definite suggestions are put forward in the King's Fund report for consultation with the hospitals. The committee expresses the view that unless there is some exceptional and adequate reason to the contrary, the most suitable hour is 6 o'clock. It is believed that the adoption of 6 as the waking hour could be effected without material increase of staff or expenditure by hospitals which have been accustomed to rising earlier; even if a small increase of staff is necessary, the committee think it justifiable in view of the gain to the comfort of the patients. A further suggestion is that breakfast should be served as soon as possible after the hour of waking ; that no patient should be washed before having either breakfast or early morning tea; that work involving disturbance of the patients before breakfast should be limited to whatever is necessary for their comfort, and that any noise in the ward before 6 o'clock should be avoided. There is nothing mandatory about the suggestions, but no doubt they will receive the careful consideration they deserve, both because of their reasonableness and because of the source from which they come.

SEROLOGICAL AND INTRADERMAL TESTS FOR FILARIASIS

Dr. N. Hamilton Fairley has recently described two new tests for filariasis.[1] An intradermal skin test for *Filaria bancrofti* was described by Taliaferro and Hoffman in 1930, and this has now been confirmed and extended to the diagnosis of *Loa loa* and *Onchocerca volvulus*. The antigen for this test was obtained by Dr. Carmichael Low from Dr. Le Sueur in Borneo, and was made from living *Dirofilaria immitis* worms, which were collected from the right heart of dogs immediately after they had been killed. The worms were chopped up and dried in a desiccator, and ground in a mortar to a fine powder, which was finally sent to England. In addition to the intradermal test, Dr. Fairley now describes a new serological one—namely, a complement-fixation reaction, for the filarial group of diseases. A technique similar to that described for bilharzia cercarial antigen (Fairley, 1930) was employed, and those interested in the details should consult the original paper. Both the intradermal and serological reactions are essentially group reactions, the scope of which probably includes all species of the family *Filariidae* ; and the clinical and theoretical aspects of the combined reactions, Dr. Fairley believes, will afford an entirely new and valuable mode of approach to the clinical study of filariasis. They will also furnish a means of differential diagnosis between real filarial diseases and the non-tropical conditions which sometimes simulate them. Again, their application to cases of tropical elephantiasis will be of the greatest value in determining whether or not *Filaria bancrofti* was responsible for the onset of the condition. The discovery opens up a new field of investigation in this interesting group of tropical maladies, and readers will look forward to the larger paper which is in course of preparation, and which will amplify the preliminary observations contained in the present note.

BIOLOGICAL STUDIES OF APICAL INFECTION

With the assistance of a grant from the Medical Research Council Mr. Arthur Bulleid has made a systematic study of the bacteriology of "apical infection"[2]—one of the most important and most debated points of dental pathology. The inquiry was divided into four main subdivisions: apical granulomata, chronic apical osteitis other than apical granulomata, acute alveolar abscess, and cystic new growths. The net result was to confirm the generally held opinion that apical granulomata and apical osteitis are foci of possible infection, to incriminate streptococci as the cause of acute abscess, and to suggest that the dental cyst, throughout the whole course of its existence, carries a residue of the original infection which started its growth. This last is an interesting and rather unexpected finding, since the clinical symptoms of a dental cyst give no hint of persistent infection ; it is a point that requires further investigation. In all the subdivisions Mr. Bulleid concludes that the chief causative factor is a streptococcus, though in the case of granulomata it may be accompanied by a staphylococcus. The numbers dealt with, and the careful methods of investigation and recording adopted, fully justify the conclusions presented by the author, and it would seem that they will be difficult to controvert. In general, his meaning is clear, but there are one or two obscure passages. What, in particular, was the special interest of the four live teeth showing absorbed apices in the skiagrams, and where was the primary focus that had healed before the absorption of the apices had taken place (p. 17)? It is interesting to note that the efficacy, or even the advisability, of root-filling is seriously brought into question by the author as one result of his investigations. We congratulate the Medical Research Council on a well-placed grant.

[1] Serological and Intradermal Tests in Filariasis: A Preliminary Report. By N. Hamilton Fairley, O.B.E., D.Sc., M.D., F.R.C.P. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, vol. xxiv, No. 6, April, 1931.

[2] *Bacteriological Studies of Apical Infection*. By Arthur Bulleid, M.R.C.S., L.R.C.P., L.D.S. Reprinted from the *British Dental Journal*. London: J. Bale, Sons and Danielsson, Ltd. 1931.

BATS

The American National Institute of Health is engaged in publishing a series of bulletins which form the third part of the well-known *Index Catalogue of Medical and Veterinary Zoology*. The first two parts dealt with authors and with subjects ; the present part deals with hosts. The first five members of this series have listed the parasites and vectors of disease to man ; the sixth, which has just been issued, considers the first of the groups of lower animals—the bats.[1] So far as is at present known, the public health importance of this very specialized group of mammals is distinctly limited. At least one species, in the Far East, is eaten as food ; in America, however, another group uses man as its food. Vampire bats are well known in literature, but it is not always realized that such animals actually exist. In Trinidad, for example, they are a well-known pest to both man and domestic animals. Planters are put to a considerable expense in some localities in making sheds and stables "bat-proof," while in some of the islands human beings are not infrequently bitten during the night. The bite is painless, but bleeds profusely, and is generally on the foot, where it has been pushed against the mosquito net. The animals are easily kept away by even a small light in the room, and the actual damage done is slight, though the psychological effect may be considerable. The vampires belong to a single family, the Desmodontidae, which is specially adapted for a blood-sucking habit ; the so-called "false-vampires," or Vampiridae, are fruit-eating bats, and cannot feed on blood. It is commonly believed that bats are distributors of bed-bugs, but while a species of Cimex actually does infest bats and bat-haunts, it is quite distinct from the human *Cimex lectularius*. The bats cannot play much part in connexion with the transmission of disease to man, but in view of recent investigations into several rodent diseases, like tularaemia and Rocky Mountain spotted fever, it is not safe to dogmatize. Certain human parasites have been transmitted experimentally to them—such as leishmania, trypanosoma, and *Treponema duttoni*—and a number of ecto-parasites which infest man have been reported as occurring naturally on bats—such as various fleas and ticks. On the other hand, many species of bats devour insects, including mosquitos, and doubtless they form one of the natural factors which serve to control these pests ; and it is possible that

[1] United States Government Printing Office. 1931. For sale by the Superintendent of Documents, Washington, D.C. (30 cents.)

they may serve as useful laboratory animals, as some species can be easily tamed and kept in captivity. The bulletin classifies all the animal parasites which have been recovered from bats, as well as the bats themselves. Like its predecessors, it is a model of compactness, and will be invaluable to all who work in medical zoology.

DUTCH TRIBUTE TO SIR ROBERT JONES

On May 21st a small but sympathetic company, consisting among others of the director, Dr. Murk Jansen, Mr. Alan Todd of London, Mr. Harry Platt of Manchester, and the staff of the hospital, assembled in the hall of the Anna Clinic of Leyden, in front of which hung the British flag. The occasion was the unveiling of a bronze plaque, by R. Lubach of Zeist, of Sir Robert Jones, who was present. After the British National Anthem had been sung by the nurses' choir, Dr. Jansen, speaking in the name of the Dutch Society for the Deformed, paid an eloquent tribute, first in English and then in Dutch, to his old friend, extolling his influence as a teacher, his organizing ability, and his kindness of heart. The plaque, he said, had been placed in a prominent position in the hospital to serve as a stimulus to the members of the staff. Sir Robert Jones, in his reply, expressed his deep appreciation of the honour done him, and described Dr. Jansen as a master surgeon and a champion of peace. The ceremony ended by the choir singing the first verse of Psalm 134.

THE DANCE OF DEATH

Most travellers have seen the Dance of Death as it is represented in frescoes in various churches and public buildings both at home and abroad; more often, perhaps, in Germany and Switzerland than in France and England. Beginning as a morality play in the thirteenth and fourteenth centuries it passed gradually into art, for as a *memento mori* it was too valuable an instrument in the hands of the clergy to be allowed to die out completely. Originally grotesque and horrible, successive artists softened its cruder features until Albrecht Dürer idealized it, and Alfred Rethel, in the middle of the last century, made it a poetical dream. Hitherto Mr. Francis Douce, the antiquary, and Dr. Parkes Weber have been the chief authorities to be consulted by those who needed information, but though their facts are correct they have considered the *Danse Macabre* as a whole, and the subject is immense. Dr. Aldred Scott Warthin, professor of pathology in the University of Michigan, has adopted a different method. In *The Physician of the Dance of Death*[1] he has taken a single figure—the physician—and has traced him through the entire series of representations from the early days to the gross caricatures of Rowlandson and Cruikshank. The result is eminently satisfactory. It shows what manner of man the physician was thought to be at different periods, and gives minute details about his dress and habits. On the whole he does not come out very well: covetous, often a quack, overfed, and not too mindful of his patients, in the Middle Ages, but gradually coming into his own as his education improved, until in the latest representations he is shown as the cultivated scientific man of the present day. The work has evidently been a labour of love for Dr. Warthin. He began it in 1893, when he bought Albrecht Dürer's "Ritter, Tod, and Teufel" in a printshop at Nuremberg, and gradually followed it up until he was able to produce a most satisfactory bibliography of 280 items, printed at the end of the present volume, a bibliography which shows that he has not only consulted most of the books written upon the subject, but actually has a large number of them in his own library. *The Physician of the Dance of Death* began as a series of papers contributed to the *Annals of Medical History* in 1930 and 1931. They are now republished with additions, corrections, and more illustrations. The book, therefore, is of outstanding and permanent value, and it is a pity that only 1,000 numbered copies have been printed.

[1] *The Physician of the Dance of Death.* By Aldred Scott Warthin, Ph.D., M.D., LL.D. New York: P. B. Hoeber, Inc. 1931. (7.50 dollars.)

B.C.G.

We publish this week at page 986 an impartial review of the circumstances of the B.C.G. tragedy at Lübeck, so far as these have been brought to light, together with some discussion of the difficulties in the way of any attempt to elucidate the affair. The time seems opportune for such a presentation, because Professor Calmette is visiting London next week, and on the evening of Tuesday, June 9th, he will read a paper before the Royal Society of Medicine on "B.C.G. immunization of infants."

STEPHEN PAGET LECTURE

The annual general meeting of the Research Defence Society will be held at the house of the Medical Society of London, 11, Chandos Street, Cavendish Square, W.1, on Wednesday, June 10th, at 3.30 p.m., with the president, Lord Lamington, in the chair. An address will be delivered by Dr. H. H. Dale, F.R.S., director of the National Institute for Medical Research, on "The effect of research on curative medicine," being the fifth Stephen Paget Memorial Lecture.

Professor D. P. D. Wilkie of Edinburgh University has accepted an invitation to act as Director of the Surgical Professorial Unit at St. Bartholomew's Hospital during the first fortnight in June. He is taking over the duties of the professor of surgery during that period and also lecturing to the students. It will be remembered that on previous occasions Professor Harvey Cushing, Professor Hugh Cabot, Lord Moynihan, and Professor Grey Turner have accepted similar invitations at St. Bartholomew's.

Professor G. Grey Turner of Newcastle-upon-Tyne is paying a visit to Boston, U.S.A., to receive in person the H. J. Bigelow Medal, and to deliver an address on "Some personal experiences in oesophageal surgery."

At a meeting of the Optical Society on June 11th at 8 p.m., in the Imperial College of Science and Technology, South Kensington, the Thomas Young Oration, entitled, "Young's theory of colour vision," will be delivered by Sir John H. Parsons, F.R.C.S., F.R.S.

SMALL-POX PREVENTION AND THE VACCINATION ACTS

We have received from the Ministry of Health a memorandum on the present position regarding small-pox prevention in England and Wales in its relation to the Vaccination Acts.*

At the beginning of the report it is remarked that the prevalencé of small-pox has long been considered as eminently preventable and the disease as one which "in view of its nature, and of the prophylactic means which we possess, should be banished from a civilized community which is reasonably organized for the care of the public health. There has been, and in a sense there still is, ample justification for looking at small-pox in this way." It is taken as "beyond the necessity of proof that individuals exposed to small-pox infection, however intense and whatever its type, will escape attack if at the time of the exposure they have already been recently and successfully vaccinated, and that they will in all probability escape attack, or only suffer from a very modified attack, if they can be successfully vaccinated within forty-eight hours following exposure."

Statistics are provided of mortality from small-pox since 1855 and of the practical immunity from small-pox of attendants in small-pox hospitals who have been vaccinated. It is next pointed out that, of recent years, infant vaccination has been decreasingly used and the prevalence of small-pox has increased, but the type of the latter has changed greatly, being manifested, if not as a relatively trivial disease, "at least as one that hardly ever has a fatal result, leaves very little disfigurement, and has few complications."

Reasons are adduced for terming the variety of small-pox mainly prevalent since 1923 variola minor, and its clinical characters are described. This form is probably identical with the variety described as long ago as 1722 by Wagstaffe. Statistics are then presented showing that at present countries may be classified as (1) those wherein the old virulent form of small-pox still prevails—India and the Far East are examples; (2) those wherein at present the prevailing strain is non-virulent—the West Indies, parts of the United States of America and Canada; (3) those wherein both types coexist—England, Brazil, and some of the Southern States of North America. In the next section, current administrative measures of control are described. These have proved eminently successful in the control of major small-pox.

"In a word, subject to consideration of the details referred to above, we have been able, almost since the beginning of the century, to think of major small-pox as a rare, exotic disease which we effectively hold in check and extinguish when it appears. We can complacently contrast our position in this respect with that of any other country in the world, and there is no reason why we should not continue to do so."

In the next section variola minor is considered, and, although the success of the usual administrative measures in many instances seems to have been rendered probable, it is noted that general control has not been attained. Many reasons exist for this failure, such as the difficulty of unrecognized cases and the reluctance of contacts and others to submit to vaccination in view of the mildness of the disease. It is pointed out that deliberately to treat variola minor as in the same category as chicken-pox would lead to internal and international difficulties. An individual patient with an extensive rash may be an unpleasant object, while international obligations with respect to notification must be respected, and some foreign authorities are sceptical as to the difference between the two forms of variola. The memorandum next considers the measures appropriate to the situation when variola minor occurs within a district. It does not seem that, when the disease first appears, any essential change of the present procedure is needed. When the disease has gained a footing, what action should be taken must be a matter for local decision.

"It can, however, be said that, to judge from the reports received from districts in which variola minor has been for some time epidemic, local authorities need not, and should not, carry on the work on the principle that all the procedures which would be applicable in the case of a major small-pox epidemic must necessarily be applied to the minor."

It is a matter for consideration whether patients suffering from variola minor need always be isolated in a hospital admitting no patients suffering from diseases other than small-pox. Co-operation between the public health staff and medical practitioners is of great importance, and the practice of arranging for consultants with special experience is commended. It may prove advisable only to attempt to secure vaccination of direct contacts, and the current practice of tracing contacts might be simplified.

The next section contains a précis of knowledge respecting post-vaccinal encephalitis. In the following section the advantages and disadvantages which local authorities derive from the Vaccination Acts in regard to control of small-pox are considered. Actually the effect of the Acts is limited to vaccination in infancy, and to the extent to which they are complied with result in the conferring of a high degree of immunity upon a section of the population. Under the most favourable conditions this might amount to 15 per cent. of the population, on the average perhaps 9 per cent. Another advantage is the utility of the public vaccinator, who has been available at all times and whose returns to the Government Lymph Establishment have been of great value, while public vaccinators specially appointed have had the duty of instructing medical students in the technique of vaccination. It is suggested that the value of these advantages has diminished under present conditions, and possible alternatives are considered. The essential point is that if the rigidity of the present system were modified and vaccination thought of not as an end in itself but as a measure "which the individual should be advised and assisted to adopt for himself and for his children at several stages of life with the idea of maintaining himself and them at a reasonably high degree of immunity at all times," it might be found expedient to utilize the many opportunities which present themselves to the public health authorities to educate the public.

"It may be claimed that an authority which desired to promote vaccination through its public health department on some such lines would at least succeed in producing a more satisfactory effect as regards protection of its population by systematic vaccination than it could obtain by the strictest application of the obligatory clauses of the Vaccination Acts."

An appendix to the memorandum contains notes on the vaccination requirements of certain European countries.

*Reports on Public Health and Medical Subjects. No. 62. A Review of Certain Present Aspects of Small-pox Prevention in Relation particularly to the Vaccination Acts, 1867-1907. London: H.M. Stationery Office. 1931. (1s. net.)

The German, Austrian, and Hungarian members of the International Society of Surgery, who were excluded in 1920, have recently been reinstated, Professor de Quervain of Berne and Dr. Shoemaker of The Hague acting as intermediaries between the International Society and the German Society of Surgery. The next congress will be held at Madrid in 1932.

MENTAL HOSPITAL ACCOMMODATION

An important circular on mental hospital accommodation was issued on May 30th to local authorities by the Board of Control. The principal points to which the Board draws attention are as follows:

The Mental Treatment Act came into operation on January 1st, 1931, and as the facilities for mental treatment without certification under the Act become more widely known, there may be an increasing demand for treatment under those provisions, which will necessitate a review by local authorities of the accommodation available. At the same time the shortage of mental hospital accommodation generally has become acute, and will oblige many local authorities to consider what steps should be taken if they are to maintain a reasonable standard of efficiency and progress in this service. Though there is no increase in the incidence of mental disorders, the number of persons under care continues to grow because the total population and the average age of the population are both increasing.

There is now practically no margin of accommodation in the public mental hospitals. On January 1st in the present year, there were only twenty-seven hospitals with ten or more vacant beds on the male side, and nineteen with ten or more vacant beds on the female side. There are practically no unoccupied beds, the use of which authorities can obtain by contract with other authorities. Moreover, the practice of taking beds on contract, though useful in special circumstances, is strongly to be deprecated if it involves sending patients so far from their homes as to make visiting by their relatives prohibitive by the expense of travelling.

The standard of accommodation laid down by the Board is a minimum standard based on long experience, and a departure from it would be injurious. Overcrowding is not only bad for the patient's mental and physical condition, but imposes unnecessary strain and may involve danger for the nursing staff. Local authorities will therefore have to consider increasing the accommodation for mental patients, and there are two main ways in which this can be done—either by redistribution of patients among the various types of institutions now under the control of the local authority, or by the provision of new mental hospitals.

As regards redistribution there are four possible alternatives:

1. The utilization of beds in public assistance institutions for the quiet chronic cases or senile cases, whose condition does not necessitate treatment of the kind that can only be given in the relatively more expensive beds of a mental hospital.
2. The removal from mental hospitals of mental defectives, who can be far more economically provided for in Poor Law premises or in mental deficiency colonies.
3. The granting of leave of absence on trial and boarding out, or discharging suitable patients to the care of relatives or friends.
4. The provision in connexion with an existing mental hospital of an admission unit and convalescent villas where these do not already exist.

In this connexion it is pointed out that every mental hospital, whether full or not, should have this accommodation, which has become imperatively necessary in view of the provisions made for the treatment of voluntary and temporary patients under the Mental Treatment Act.

The second main alternative is the construction of new mental hospitals, and the Board points out that there will be some authorities who will find themselves compelled before long to build such institutions. Local authorities who have no right of ownership in any mental hospital, and who, therefore, have to secure by contract beds for patients for whom they are required to provide accommodation, are particularly concerned with this aspect of the question. As the shortage of accommodation generally becomes more acute, notices terminating existing contracts are being given, and some authorities will have no alternative but to make provision themselves. The circular suggests that the problem could best be approached by means of local regional conferences, when consideration might be given to the possibility of uniting for the purpose of providing a joint mental hospital. It is the Board's intention to stimulate the holding of such local conferences for this purpose; and the circular has been issued to assist the local authorities in envisaging the main considerations which should determine the extent and nature of any additional accommodation that may be necessary.

Where new buildings prove to be essential, the expenditure involved is not likely to be serious, and in most cases would represent only a small fraction in the local rates. The provision of accommodation for the insane is, moreover, a statutory obligation which local authorities are bound to meet, and the purpose of the circular is to assist local authorities in framing plans to meet the existing shortage in a manner which will be, in the long run, conducive to the most efficient and economical administration of the service.

Scotland

Mental Defect in Scotland

A conference was held in Glasgow on May 22nd, under the auspices of the Scottish Association for Mental Welfare. Dr. J. Parlane Kinloch, Chief Medical Officer of the Department of Health for Scotland, who presided and delivered the opening address, said that they had to get back to the old Greek ideal of healthy childhood and youth. They had to recognize that for the living child there must be a rhythmic exercise of the mind alternating with a rhythmic exercise of the body. He thought that such an arrangement during school hours would, in the course of four or five years, produce much greater mental efficiency than six hours of steady educational work daily. A paper dealing with mental deficiency was read by Dr. R. D. Clarkson, medical superintendent of the Royal Scottish National Institution, Larbert, who estimated that if the percentage of mental deficiency in Scotland was similar to that in English areas the total number of mental defectives in Scotland was about 40,000. Mental deficiency therefore constituted one of the greatest of social problems, and they should shrink from no measures, however drastic, to prevent it. He believed that injuries to the brain at birth were responsible for a large number of cases. Not all of these cases could be prevented, but much might be accomplished by emphasizing the necessity for ante-natal care and by raising the standard of education of medical men and midwives. Just as the growing body required small quantities of vitamins, whose nature and function were still obscure, so the mind required what had been called "psycho-vitamins," including family affections, moral principles, and religious belief. Recognition of this fact was essential for the success of any campaign of mental hygiene. In discussing the question whether other cases of mental defect could be explained by the action of innate, intrinsic, or hereditary causes, Dr. Clarkson said he did not think that heredity played a large part; it was impossible to imagine that mental defect was a unit character like the colour of the hair or of the eyes. It had been urged that the feeble-minded should be segregated, but they could not afford to segregate 40,000 persons. They did, however, need more boarding schools for defective children and more industrial colonies for adult defectives than they had at present. Dr. R. M. Marshall, consulting neurologist to the Glasgow Education Committee, who gave an address on the ascertainment of mental defect, considered that in determining idiocy the criterion of inability to

guard against common physical dangers was a valid one. In the ascertainment of imbeciles their failure to manage themselves or their affairs was not a very satisfactory guide, the crucial test of trial for a year being always advisable in special classes. In regard to the feeble-minded the criterion should be a purely scholastic one, and the question of social adaptability should be considered only when it was raised by the conduct of the individual. Indications for notification to the Board of Control of feeble-minded persons at the age of 16 should be based upon the educational and intellectual life of the child. Dr. D. Yellowlees, Glasgow, suggested that one of the functions of the association was to recognize that the human mind was living and moving purposefully. The primary force behind it was that of primitive instincts, and healthy mental development meant that these primitive forces and tendencies were being organized, sublimated, and directed towards aims in a real outside world. One of the objects of the association was to create a public conscience regarding the mental influences offered to children, whose selective powers were in process of development. In this connexion he stressed the importance of quality in the provision of cheap reading matter and of cinematograph films.

Scottish Nursing Conference

In opening the conference in connexion with the Scottish nursing, hospital, and health week, held in Edinburgh from May 24th to 30th, Lord Provost Whitson said that it was designed to provide a refresher course for nurses of all departments, and had a special appeal to all engaged in public health activities. Statistics indicated that the nursing profession was a healthy one; it was the only profession in which emoluments were included during education, and it had the further advantage that the knowledge and experience acquired in the course of training was often useful in domestic life. Unlike other professions there was no unemployment if a nurse was physically fit. Dr. J. Parlane Kinloch of the Department of Health for Scotland, in the course of an address on "The future training and organization of nursing," said it was obvious that four great training schools for nurses would in future be associated with the four regional medical schools at Edinburgh, Glasgow, Dundee, and Aberdeen, and that every hospital and clinic in these centres must be orientated towards this training. It was desirable that after leaving school the prospective nurse should engage for a period of eighteen months in acquiring a knowledge of the principles of biology, pathology, chemistry, anatomy, physiology, and dietetics. She would then be ready to enter on a three years' training in hospital, followed perhaps by specialization. He thought that the new organization of the hospital community, devised under the Local Government Act of 1929, would provide a complete training for an adequate health and nursing service. In a paper on "The problem of training the nurse," Dr. John Guy stated that in some places there was an arrangement between the general and fever hospitals by which a three years' preliminary training in a fever hospital was accepted as equivalent to one year's general training. This meant that before certificates in general nursing and fever nursing could be obtained six years must be spent in hospital; if, in addition, a nurse desired a certificate in children's work, a certificate of the Central Midwives Board, and training in mental welfare, she must spend altogether some eight or nine years in work and study. It appeared, therefore, that the time was more than ripe for a co-ordination of training in the various branches of nursing, and that the matter should be considered by a conference of municipalities, which were the largest employers of nurses. He thought that for an all-round training, two years of general medical and surgical work, one year of fevers, six months of tuberculosis, and six months of mental work, would suffice. Dr. James Young, in an address on "The prevention of maternal mortality and disability," said that every year in these islands over 4,000 women died from child-bearing, a ratio of about 5 per 1,000 births, and it had been computed that for every such death at least ten women suffered from ill-health, giving a total of about 40,000 women damaged in health every year by this cause. These cases represented about 50 or 60 per cent. of the patients treated in the gynaecological departments of general hospitals. The factors that contributed to this maternal disability naturally prejudiced the child, and in this connexion it was noteworthy that while recent advances in public health had led to a rapid reduction in the death rate of infants during the first year of life, the death rate among newly born infants remained practically stationary. In his opinion a great part of this annual mortality and impairment of health could be prevented, a fact which was proved by widely varying death rates in different parts of the country. The nine hundred or more ante-natal centres that had been set up throughout the country had failed to reduce the mortality, mainly because the importance of ante-natal care was not sufficiently realized. The necessary rest at home was often unprocurable, and it was gradually coming to be recognized that a national maternity service which would provide every woman with a midwife or doctor and, if need be, the services of a hospital, was essential. Dr. W. M. M'Alister, medical officer in charge of mental health services under the Corporation of Edinburgh, speaking on "Modern methods of treatment in dental disease," said that the ideal of modern treatment was prevention. With this in mind, intensive study of the antecedents of insanity, whether hereditary or environmental, contact with and treatment of abnormal mental tendencies at the earliest possible stage, and the provision of machinery for achieving these two aims, were the necessities of the present time. The make-up of the individual must be carefully studied, along with influences of home and companions, and of the general physical condition. In ascertainment and treatment the psychologist must join hands with the social worker. Psycho-analysis had illuminated the whole range of mental disorders, but in practice it had serious limitations, the most obvious being the necessary co-operation of the patient. Great care had to be taken in choosing cases for psycho-analysis, because mental crises might be precipitated by an attempt to analyse a patient who was not a suitable subject. Very often something less pretentious than formal psycho-analysis gave just as good curative results. He believed that in the prevention of mental disease it was impossible to over-emphasize the importance of examining the mental as well as the physical state of the child, and for this purpose children's clinics should be established in each of the large centres. These centres should also have an out-patient clinic associated with the general hospital, which should devote a certain number of beds for the observation and treatment of mental cases. Dr. A. S. M. Macgregor, medical officer of health for Glasgow, who delivered an address on "Maternity services," said that the scheme for the provision of home helps had been in operation in Glasgow since 1924, and had met a definitely felt want. The Public Health Committee of Glasgow had employed 17 women in this way up to the end of 1925; since then the demand had been increasing, and in 1930, 204 helps were provided for households in which there were children under 5 years of age. The importance of the service of midwives could be gathered from the fact that in Glasgow last year there were 24,500 births, of which 4,000 took place in

institutions and 4,000 were supervised by outdoor maternity services from institutions. Of the remaining 16,500, 9,600 were managed by midwives alone. Thus of the total births, 40 per cent. were conducted by midwives in the homes of the people and 26 per cent. by medical practitioners. It was now coming to be regarded as desirable that midwives should possess a general nursing qualification. The addition of puerperal pyrexia to the list of notifiable diseases had had the effect of increasing the 516 cases of puerperal fever notified in 1929, to 598 notified in 1930, with the addition of 235 cases of puerperal pyrexia. He looked forward to the time when it might be possible to produce a code of precautions which would make puerperal sepsis as rare as severe ophthalmia neonatorum.

Edinburgh University

At a meeting of the University Court of Edinburgh University, on May 25th, Dr. Sydney Smith, professor of forensic medicine, was appointed dean of the Faculty of Medicine in succession to the late Professor Lorrain Smith. Professor Smith was also appointed the University representative on the General Medical Council. At the same meeting it was intimated that Dr. Walter Smith Kay, who died on April 22nd, had bequeathed to the University a sum of £5,000, of which the annual income was to be applied towards aiding research in mental diseases or psychiatry. Dr. Kay graduated M.B. at Edinburgh in 1877, and was formerly medical superintendent of the asylum at Wadsley, Sheffield.

England and Wales

Voluntary Hospital Progress

King Edward's Hospital Fund, which assists 141 hospitals within an eleven-mile radius of St. Paul's, has adopted the method of setting out on coloured charts, which are issued as leaflets, the financial position of the hospitals, the sources of their revenue, and the extent of their services over a period of recent years. All the curves have an upward character, except the one representing revenue from legacies, which fluctuates from year to year. During the five years 1925–29 both the general expenditure and the general income of the hospitals of the metropolis as a whole rose by about half a million. The income from voluntary gifts is still the largest source of hospital revenue, followed closely by payments on account of services rendered. In 1929 a sum of £1,378,000 was received by way of subscriptions and donations, and £1,214,000 by payments for services, of which the greater part was made by patients, either as voluntary payments or through contributory schemes, and the remainder by payments by the public authorities. Interest on investments now represents about 17 per cent. of total income. Hospital finance is more or less a reflection of the charitable resources of the community, but the figures which illustrate the services that hospitals are performing show consistent increase also. Thus the number of beds in the voluntary hospitals of London has increased in five years by about 2,000; the actual number of in-patients treated by nearly 40,000; and the out-patient attendances by 1,150,000. An increase in the number of pay-beds is also shown. There are now 1,425 such beds distributed among 99 of the hospitals on the list of the Fund, and with the developments promised at the West London and other hospitals, this number is likely to be largely increased in the near future. A few words may be added about the Fund itself. Although it bears the name of King Edward, it dates back to the year of Queen Victoria's diamond jubilee, when it distributed £50,000 to 97 hospitals. In 1930 its ordinary distribution was £266,000, and to 141 hospitals, not counting 57 convalescent homes. The hospitals on its list include the 12 teaching hospitals, between 50 and 60 general hospitals, including cottage hospitals, and between 60 and 70 special hospitals. Apart from special efforts, the ordinary annual grants have risen steadily almost year by year, until in 1928 and 1929 they touched a quarter of a million, a figure which in 1930 they surpassed. In addition, in 1929, the Thank-offering Fund for the King's recovery, amounting to £115,000, was distributed.

Cave-dwellers of Derbyshire

Under the auspices of the Warrington Division of the British Medical Association a lantern lecture on the cave-dwellers of Derbyshire was given in the Warrington Infirmary on May 20th by Mr. A. Leslie Armstrong, F.S.A. He dealt with the occupation of Derbyshire caves by man in the earliest prehistoric periods, and pointed out that the caves had been almost consistently occupied from before the great Ice Age onwards. The Marlborough Cave, near Brassington, though not very rich in relics, was a good example, since an examination had revealed an occupation of early Palaeolithic date, and in succession men of the Stone Age, Bronze Age, Iron Age, and Roman period had lived there. It was known to have been the haunt of highwaymen. The most important cave so far explored in Northern England was the Pin Hole Cave at Creswell Crags, on the borders of Derbyshire and Nottinghamshire. The Creswell Gorge was about a quarter of a mile in length, and contained five large caves, four of which were examined and their contents removed over fifty years ago. Fortunately the Pin Hole Cave was left practically intact; it was the only one in the series which could have contained the complete story of occupation during prehistoric times. Mr. Armstrong said that he started work there seven years ago under a joint committee of the British Association and the Royal Anthropological Association, with important results. It was interesting as the most northerly place where traces of Palaeolithic occupation had been found in England. There were two layers of cave earth, with a total thickness of seventeen feet, all of which had been systematically examined, layer by layer. In the cave there were three zones of occupation by men of the Mousterian Era, representing the earliest known traces of humanity in Derbyshire; two dated from a period of time long before the oncoming of the last great Ice Age. In the upper cave earth a series of occupations was revealed by men of late Palaeolithic times, terminating in a cold, wet period which seemed to synchronize with the final cave period of France and Europe, and was often termed the Reindeer Period. Immense quantities of reindeer remains had been excavated from this particular level. The cave has been rich in remains of animals now extinct in Great Britain, including the cave lion, cave hyena, the mammoth, woolly rhinoceros, bison, horse, and several species of deer.

King's College, London

Work has now begun on the new anatomy department of King's College, which is being constructed in two additional stories on the roof of the existing buildings at a cost of over £60,000. Greatly increased laboratory, research, and museum accommodation will be provided. The anatomy department in future will be in close geographical association with the other biological departments of the College, and for their general use a suite of

rooms for animal experimental work is being included in the new building. These extensions represent the first step in execution of the building programme set out in the centenary appeal of the College. The next will be the conversion of the old anatomy department into an extension of the chemistry department. The extension and thorough modernization of the medical department of the College has been undertaken to meet the needs of the large and growing pre-clinical school, which is associated on the clinical side with four of the London teaching hospitals—King's College, Charing Cross, Westminster, and St. George's.

The Sound Film in Medical Education

Recently a party of about ninety-five members of King's College Medical Society, including Professor D. M. Blair, the dean of the Medical Faculty, were entertained to a sound film of a Caesarean section, by the courtesy of the Western Electric Company, Ltd., at their private cinema in Bush House. Mr. F. B. Ransford, on behalf of the company, made a short speech welcoming the society, and explaining the use that such a film could be put to for instructional purposes, not only for medical students, but for practitioners attending refresher courses. He advocated the use of cinemas constructed in hospitals and medical schools, and also facilities for taking sound films of any peculiar cases or operations, so that the latest hospital technique and instruction could be available for all doctors and surgeons throughout the country. At the conclusion of the film the dean spoke a few words, agreeing with Mr. Ransford, and pointing out the special advantages of this film, in that it could take the student away from the operation theatre and explain the subject more lucidly by means of animated diagrams, while none of the actual operation was missed ; moreover, the various complications to the operation could be shown as a part of the same film. He also called attention to the method used in the film by Dr. De Lee, the operating surgeon of the Chicago Lying-in Hospital, who, it should be mentioned, used and recommended a local anaesthetic. Mr. J. D. Moore, the president, then proposed a hearty vote of thanks to the Western Electric Company and the honorary secretary of the Medical Society for the trouble taken in arranging the visit.

Coroners' Inquests

Addressing the jury at an inquest held recently by him at Southwark, Dr. Waldo said that the new permissive power given coroners under the Coroners (Amendment) Act, 1926, in cases of sudden death from causes unknown, of merely requesting the family doctor or any other medical man to make a post-mortem examination, and dispensing with a formal inquest, and then reporting to the local registrar the cause of death as suggested by the doctor, cast grave responsibility upon the coroner. Some experienced coroners, both medical and legal, had expressed the opinion that if a necropsy was necessary, a formal inquest, with the witnesses on oath and the relatives present, was equally necessary in the public interest. He (Dr. Waldo) noticed in the Criminal Statistics for 1929, just published, a considerable divergence and want of uniformity in the use of the new power given coroners under Section 21 of the Coroners Amendment Act. For instance, among whole-time coroners one coroner held 632 inquests during 1929, and, in the same year, as many as 604 non-inquest cases with post-mortem examinations only. Meanwhile other whole-time coroners had made no use whatever of Section 21 of the new Act. It would be both interesting and instructive to know the reasons for the diverse procedure of coroners under Section 21 of the new Act.

Ireland

Vital Statistics for Northern Ireland

During the first quarter of the present year 6,427 births were registered in Northern Ireland, and 5,814 deaths, of which 693 were of infants under 1 year of age. The population being estimated provisionally at 1,246,000, the mortality works out at 18.7 per 1,000, as compared with 18.6 in the Irish Free State, and 16.5 in England and Wales. Of the total deaths 1,229 occurred in public institutions, and 482 were uncertified. There was a diminution in all forms of infectious disease notified, especially scarlet fever, with the exception of acute pneumonia. Influenza was prevalent in all parts of Northern Ireland. The epidemic commenced about the second week in January, reached its peak in the first week of March, and then quickly receded. On the whole the epidemic was mild in character. Measles also has been epidemic in Belfast county borough ; otherwise the health of the area is stated by the Chief Medical Officer of the Ministry of Home Affairs to have been fairly satisfactory during the quarter. The urban mortality from the principal epidemic diseases was equivalent to 1 per 1,000 of the population, the death rate from these diseases for the remainder of Northern Ireland being 0.3 per 1,000.

Hospital Services in County Armagh

At the last monthly meeting of the Committee of Management of Armagh County Infirmary a letter was read from the Northern Ministry of Home Affairs which had been addressed to the county council in answer to an inquiry if the Ministry had yet prepared a comprehensive scheme for the hospital service of the county. The occasion of the inquiry was the sanctioning of a loan of £40,000 by the Lurgan Board of Guardians for the improvement of hospital buildings in Lurgan and for the reconstruction of the workhouse hospital. The Ministry stated that the Government had not come to any decision with regard to the general reorganization of the local government services, but that it was satisfied that the continued existence of the workhouse infirmary at Lurgan was necessary, and that the present buildings required considerable alteration to make them suitable for their purpose. In the circumstances there appeared to be no alternative but to authorize the board of guardians to proceed with the reconstruction of the premises. A deputation, including members of the council, was appointed to discuss the matter further with the Ministry.

St. Ultain's Hospital

At the annual meeting of St. Ultain's Hospital, held recently, Miss Ffrench Mullen, secretary to the hospital, intimated that, with the prospect of a substantial cheque from the sweepstake scheme, work had already been begun on a new wing ; the addition of four wards would help to reduce the waiting list and provide extra accommodation for nurses. In proposing the adoption of the report, Dr. Ella Webb declared that the importance of children's diseases was not sufficiently recognized in examination papers. Professor T. Gillman Moorhead, President of the Royal College of Physicians, stated that, while the infant mortality rate was falling in Ireland, it was still too high. The death rate in the Irish Free State was formerly 90 in every 1,000, but this had now fallen to 70, a figure that compared very favourably with the returns from the British Isles generally. Dr. Horne said that, although 95 per cent. of the sick babies treated were born in sound health, most of them were in a semi-moribund condition when admitted. The value of St. Ultain's Hospital could be realized by the fact that over a hundred of these babies were cured every year on an average, and given a good start in life.

Correspondence

OSTEOPATHY AT HOME AND ABROAD

SIR,—The Bill for the recognition of osteopathy and for conferring upon its exponents approximately the same legal status as is enjoyed by registered practitioners in medicine, which received its first reading just before the Parliamentary recess, has been withdrawn, owing, we are informed, to differences of opinion among the osteopaths themselves. Perhaps this happy consummation has been brought about through the realization, tardy but welcome, by the British osteopaths that their American colleagues in this country were using them to pull chestnuts out of the fire for the American colleges, which are no longer as prosperous as they used to be.

In the debate upon the motion brought forward by me in the House of Commons on February 9th, 1926, asking for "an inquiry into the whole position of irregular practice in medicine and surgery"—under which heading, of course, osteopathy figured prominently—Mr. Neville Chamberlain, the then Minister of Health, made a vitally important official pronouncement, which has served as a very effective check upon efforts on the part of various unqualified practitioners to secure recognition. Thus a few months after that date efforts by the opticians to obtain "registration" were frustrated by the quotation of that pronouncement. Mr. Neville Chamberlain said that "if the osteopaths wanted to have a register of osteopaths in this country, let them set up their own colleges, give their own diplomas, and then they would be forced to do what they had done in America; their curriculum would gradually have to conform to something very nearly approaching the normal curriculum in this country," and, with pointed reference to a claim that diplomas given by American colleges should be recognized in this country, he said that "to ask this country to accept diplomas from another country, into the value of which we really could not pretend to examine, and over the qualifications for which we have no control, is really not a practical proposition." Notwithstanding this warning, the promoters of the Bill which has just been withdrawn included a clause admitting to the proposed register "the holder of certificates granted in a British Dominion *or foreign country*" (the italics are mine), thus clearly foreshadowing the wholesale recognition of American diplomas, expressly deprecated by Mr. Chamberlain. Happily, as I have said, British osteopaths have recognized at last this impudent effort on the part of the American osteopaths to force their diplomas upon the osteopathic practitioners in this country, for that is what would necessarily have eventuated from the Bill. The British School of Osteopathy remains so inadequately equipped from every point of view to teach any branch of medical science that it does not fulfil the requirements mentioned by Mr. Chamberlain, and the Americans, who so largely dominate, and would continue to dominate, any osteopathic association in this country, would see to it that British students would be required to resort to American colleges before they were granted admission to the British Register of Osteopaths. It is doubtless that well-justified apprehension on the part of British osteopathic practitioners that has brought about the present collapse of the Bill.

In order to oppose the Bill more effectively when it should reach its second reading in the Commons, I communicated with the very efficient Bureau of Legal Medicine and Legislation of the American Medical Association, and I have received new information regarding the present position of osteopaths in the United States which may interest your readers. This information offers, I think, an explanation of the present drive by the American osteopaths in this country.

In the United States, the happy hunting ground of quacks of all kinds, osteopathy is only one of very numerous cults "recognized" in varying degree by the legislatures of the various States. It is difficult for us, but important, to realize that in the United States there is no general authority (in America it would be called "Federal"), such as is vested in our General Medical Council, to distinguish qualified from unqualified practitioners of medicine; consequently in every State conditions of admission to practice are peculiar to that State. It is exceedingly difficult, therefore, to form a general view of the measure of recognition offered in the States to osteopaths, but there are certain recent tendencies which are acting in the direction of making osteopaths particularly anxious to assimilate their practice to that of orthodox medicine; indeed, it might be said that the original and demonstrably absurd formula of its founder, Andrew Still, upon which osteopathy pretended to base any claims it has for distinctive medical practice, is now much less rigidly followed by osteopaths than by their imitators the chiropractors, who are also widely recognized in the United States. Mr. Chamberlain's acute prophecy in 1926, that the curriculum of the osteopaths would more and more conform to the curriculum of general medicine, has become justified by the event; thus, in a very illuminating report sent to me by the secretary of the Michigan State Medical Society's legislative department, as the result of an inspection of the Philadelphia College of Osteopathy carried out in 1930 by the secretary of the Michigan State Medical Society, Dr. Warnshuis, it is stated that "the Philadelphia College has been established about thirty-five years, and is accepted by osteopaths as their best college. . . . All branches of medicine were represented, such as the Cardiac Clinic, Eye, Ear, Nose and Throat, Genito-Urinary, Gastro-Enterology, etc.," and the significant note is added that "in connexion with the out-patient department there was a large pharmacy, the shelves being well filled with all types of drugs." Dr. Warnshuis, while conceding that "the approach to the conditions of the orthodox medical colleges made by the Philadelphia School is thus very considerable," and that "the younger element, at any rate, which is rapidly assuming control, would probably welcome a working agreement with the colleges of medicine, and even an absorption by the Association of Medical Colleges if a chair of mechano-therapeutics can be established at those colleges," notes that the weak point in osteopathic training is the poor teaching personnel, especially in the medical sciences and in clinical medicine—a weakness obvious in all the "approved" osteopathic schools.

Another movement acting with the same effect is the increasing insistence in the United States upon a certain level of teaching in what are called the "basic sciences of medicine"—anatomy, physiology, chemistry, bacteriology, pathology (and in some States hygiene)—a level to which any cult aspiring to any kind of medical practice must conform. The passage of laws requiring this level of preliminary scientific education in many States has resulted in reducing enormously the number of osteopathic and other "cult" candidates, and osteopathic schools which have not raised their standards to this level have largely gone out of practice, so that there are now not thirteen, but only six, "approved" osteopathic schools. Some of these competing cults—chiropractic, naturapathy, sanipractic, naprapathy—have trespassed so far upon the domain of osteopathy as to diminish what one of my correspondents calls "the pulling power of osteopathy as a novelty," and it is, of course, the similar

competition in this country that has made osteopaths here so anxious for registration.

That the osteopathic calling in America has felt the draught is obvious from a "message" from the president of the American Osteopathic Association, conveyed in the journal of that association for August, 1930, in which he says: "If osteopathy is to live, our colleges must have more students," and one of the devices which he recommends for attracting students is the exhibition of a picture called "Dan's Decision," in which it is naïvely stated that the American Osteopathic Association "has invested 8,500 dollars," and which it earnestly entreats its members "to exhibit in every town and city." In other words, while the medical schools of the United States are picking and choosing their students from a much larger number of qualified applicants for admission than the schools can accommodate, the osteopathic schools are touting for new recruits by using the methods of the cheapjack. In this situation of a falling home consumption one may perhaps find the explanation of the recent attempt to capture for American osteopaths the British market, an attempt which, for the moment at any rate, has failed.—I am, etc.,

London, W., May 30th. E. GRAHAM-LITTLE.

OPERATION FOR CATARACT

SIR,—In your issue of May 16th (p. 877) a reference is made to cataract and medical practice, which raises points of practical interest.

It is stated that the sight of the one eye is "very good." This raises the question whether an operation for cataract in one eye, when the vision of the other is sufficiently good to enable the patient to carry on his work, is advisable or justifiable. The important point is: Will the patient be benefited?

As Mr. Bishop Harman has pointed out, the patient will continue to use the unoperated eye as he has done before the operation. The late Professor Schmidt-Rimpler of Halle discussed this question fully on the basis of his own personal experience (*Klinische Monatsblätter für Augenheilkunde*, 1911, Bd. 49, S.692). He states definitely: "I therefore advise no one, who has a healthy eye with normal vision, to permit a cataract to be removed from the other eye unless there are special reasons. . . ." This has always been my own practice, and on the several occasions on which I have deviated from it, at the patient's request and after giving due warning, I have always found that the patient was very uncomfortable, even when the vision of the better eye was considerably impaired, so that it was necessary to use an opaque glass before it, or that, alternatively, he did not make use of the operated eye. In one case the patient insisted on using the unoperated eye, although the operated eye, with its cataract lens, had better vision, and it was necessary to remove the immature cataract from the unoperated eye. Fortunately, the intracapsular method successfully overcomes any difficulty in this respect. The question is of interest in as far as patients, and sometimes doctors, have some difficulty in understanding why unicocular cataract cannot simply be removed with restoration of normal vision.

The second question arises from the sentence "Of course he understands that anyhow he will not be able to drive his car." A patient with cataract in one eye who can drive a car before operation can surely drive it afterwards, using either the operated eye with a lens, or the unoperated eye. My experience is that patients can drive cars and shoot pheasants after operation on one eye.

A third point which arises indirectly is: If a patient has had a successful operation on one eye, is any material advantage gained by operating on the other commensurate with the risks involved, especially in old persons, the expense, etc.? This question, again, will be decided differently according to circumstances, but as a general rule the answer is in the negative.—I am, etc.,

Edinburgh, May 26th. H. M. TRAQUAIR.

FRACTURES OF THE NECK OF THE FEMUR

SIR,—In answer to your correspondent C. S. (May 23rd, p. 913) may I say that the typical deformity in fractures of the neck of the femur is adduction? The angle formed between the neck and shaft is less than normal, excepting in rare cases. The greater the shortening the more the adduction; and in old neglected cases with a real shortening of an inch it is not uncommon to have a practical shortening of three inches or more, due to a combination of flexion and adduction.—I am, etc.,

Liverpool, May 26th. ROBERT JONES.

SIR,—Sir Robert Jones, in his article on fractures of the neck of the femur, states that the correct technique of the plaster-of-Paris spica is too often ignored, though this must be mastered for the splint to be comfortable and efficient. Will some one familiar with the approved method describe it in detail in your columns, and will he indicate the best way to remove the splint when it is no longer required?—I am, etc.,

Ludlow, Salop, May 28th. T. H.

TREATMENT OF BRAIN ABSCESS

SIR,—In his interesting and successful case of otitic cerebellar abscess described in the *Journal* of May 23rd, Mr. Courtenay Yorke emphasizes: (1) the use of the hypodermic syringe in the exploration for brain abscess; and (2) the use of a drain of small size and with the object of drainage alongside and not necessarily through the tube. In the *Proceedings* of the Otological Section of the Royal Society of Medicine I have taken the opportunity on more than one occasion to support this view, in fact so far as to express enthusiasm for it.

Syringe and needle exploration appears to be particularly reliable in the discovery of otitic brain abscess either of the cerebellum or of the temporo-sphenoidal lobe. If the findings are negative then there is either no brain abscess or it is out of reach, or has not been entered by the needle. Lund has emphasized the value of the method, and if a healthy brain be punctured in a negative case no apparent harm results. This writer also favours the small drain, and refers to the work of Lemaître, who has advocated filiforms for the purpose. It is unnecessary to make a greater opening in the dura mater than will suffice to admit the drain.

Success in the treatment of brain abscess may lie with its early recognition, and a reliable method of exploration and drainage will encourage otologists to take action, particularly if the trauma caused may be reduced to the minimum.—I am, etc.,

Liverpool, May 28th. H. V. FORSTER.

PSEUDO-ARGYLL ROBERTSON PUPILS WITH ABSENT TENDON REFLEXES

SIR,—In Dr. W. J. Adie's interesting paper under the above heading (*British Medical Journal*, May 30th, p. 928) no allusion is made to the first account of such cases published in England—namely, that by Dr. C. Markus, "A peculiar pupil phenomenon in cases of partial iridoplegia," in the *Ophthalmological Society's Transactions* (1906, vol. xxvi, p. 50). In Dr. Markus's first patient he mentions that, in addition to absence of knee-jerks, I

found absence of Achilles reflexes. But surely Dr. Adie does not mean to separate cases presenting what might be termed " atypical (generally unilateral) Argyll Robertson *large* pupil with ' hypertonic ' reaction to accomodation," *without abnormality of tendon reflexes,* as of different nature from cases similar in regard to the pupil phenomena, but *with absent tendon reflexes.* Dr. Markus alluded to the question of syphilis, but favoured the view that the condition might be regarded as the result of an " abiotrophy " in Sir William Gowers's sense. Dr. Markus's observations on the relative parts played by accommodation and convergence in producing pupil contraction have apparently not received much attention.

Incidentally, in regard to the insidious onset of the pupil phenomena in many similar cases, I may mention that the subject of Dr. Markus's third observation was a fellow-student with me at Trinity College, Cambridge, where I used to see him almost every day, and can therefore say that he almost certainly did not then have unequal pupils. As to prognosis in such cases, it is interesting that since Dr. Markus's paper this doctor (his third case) overcame a severe attack of typhus exanthematicus, and scientifically has greatly distinguished himself. It seems, therefore, unlikely that, except for the purely local condition, the prognosis can be bad.—I am, etc.,

London, W., May 30th. F. PARKES WEBER.

RUPTURE OF TENDONS

SIR,—In Mr. Harry Platt's interesting paper on rupture of tendons, published in the *Journal* of April 11th, I was struck by the brevity of his reference to the injury popularly described as " rupture of the plantaris tendon." He dismisses it as an incorrect diagnosis for partial rupture at the musculo-tendinous junction of the tendo Achillis. His view is supported by the fact that in cases where he has operated for rupture of the tendo Achillis he has found the plantaris intact.

It would be interesting to know whether a rupture of the plantaris tendon has ever been demonstrated by operation, as the condition sometimes called " tennis leg " has several very distinctive features. First, it is very common—I have met with at least four while playing in tennis tournaments. Secondly, its symptoms are always typical—the patient looks round to see who has struck his calf. Thirdly, though very painful at first, it is quite possible to walk, and even run, if the foot is kept in a position of active plantar flexion, showing that tension on the damaged structure can be relieved by contraction of the muscles attached to the tendo Achillis. Finally, the most rapid cure results from getting the patient to start walking freely the day after the accident. I have suffered from the injury myself, and can vouch for the success of this somewhat painful treatment.

It would be interesting to know whether, in cases of partial rupture of other muscles in the body, relief can be obtained by active contraction of the undamaged portions of the same muscle, and rapid cure effected by its active exercise.—I am, etc.,

C. M. FINNY, F.R.C.S.,
Poona, India, May 14th. Major R.A.M.C.

CONVULSIONS DURING SURGICAL ANAESTHESIA

SIR,—Again the question of convulsions during anaesthesia has been raised in your columns, by Dr. J. Ross Mackenzie (March 14th, p. 440). He attributes the convulsions to two factors, toxaemia and ether, and mentions that in his cases convulsions did not occur for at least fifteen minutes. But cases have occurred with anaesthetics other than ether, and quite a number during induction. One of my own cases occurred during induction by chloroform alone in a dentist's chair. I had no hesitation in continuing the induction, and the patient took it well. He had not previously had fits, nor has he had any since.

I feel fairly confident that the great increase of convulsions under anaesthesia in recent years is due to the lightness of the anaesthesia rather than to the particular anaesthetic used. The proneness to convulsions is, of course, bound up with the greater tendency of some individuals to fits from slight provocation as compared with others, a subject of special importance in relation to epilepsy.—I am, etc.,

Melbourne, April 21st. W. SPALDING LAURIE, M.D., B.S.

ALKALINE THERAPY IN SCARLET FEVER

SIR,—In view of the work which has been done during the past three or four years for the prevention and treatment of albuminuria and nephritis in scarlet fever the following results may prove interesting in support of alkaline therapy. This method of medication, dating back to the end of last century, has received fresh impetus from the researches of Dr. A. A. Osman, and his work has proved so satisfactory that I attempted to adopt his theories in records of my own.

In all, I dealt with 589 cases of proved scarlatinal infection in patients from the age of 5 years and upwards admitted to three wards in Plaistow Fever Hospital, London. Out of that number only 11 developed albuminuria and 9 nephritis. The percentage of albuminurias, therefore, was 1.9, and the percentage of nephritis 1.5. This gives a total incidence of 3.4 per cent. Control cases gave a total incidence of 11.2 per cent., so the marked reduction indicates that alkaline therapy is of value in the prevention of these complications. The statistics of albuminuria were separated from those of nephritis—that is to say, cases with albumin only in the urine were distinguished from those showing blood and albumin.

The mixture used throughout the tests consisted of 40 grains each of potassium citrate and potassium bicarbonate to one ounce of water, and an ounce dose was given night and morning. There has apparently been some difficulty in the past in arriving at a satisfactory dose for administration, and, moreover, doubt has existed as to when the alkaline mixture should be commenced. In order to determine a satisfactory standard of dosage I further examined 63 cases of scarlet fever in the different weeks of illness. In those cases the drug was given in increasing doses until the urine reacted an alkaline reaction, and the transition from acid to alkali was determined more accurately by an estimation of the hydrogen-ion concentration of the urine. It was found as a result of those tests that the average dose of mist. alk. required to give an alkaline urine in first-week cases was 2 drachms three times a day for six doses; for second-week cases 4 drachms three times a day for six doses; and for third-week cases 4 drachms three times a day for nine doses. My cases in the fourth week of illness were too few to offer any conclusions, but it appears that the dose required in the fourth week would be 2 drachms three times a day for three doses. I am indebted to Dr. D. MacIntyre, medical superintendent of Plaistow Fever Hospital, for permission to publish my results.

These findings indicate that, as infection progresses, a larger dose of mist. alk. is required to render the urine alkaline; in other words, that acidosis increases as time goes on. Now the period of maximum acidosis, or maximum alkali tolerance, appears to be in the third week of illness, and it is just at this time that nephritis usually shows, so a positive correlation does seem to exist between those two conditions. I would suggest from those results that, on admission, every case of scarlet fever in the first week—and most cases are admitted during that week—receive 2 drachms of mist. alk. three times

a day for two days—this should be sufficient to combat acidosis in this week. During the second week the dose should be increased to 4 drachms, and this could be maintained during the third week. Only by dealing with acidosis at the very commencement can we hope to prevent the cases of albuminuria and nephritis, which are still in large enough numbers (11.2 per cent. in my series) to cause concern to those responsible for their care.—I am, etc.,

Dewsbury, May 25th. JAMES B. SAMSON, M.D.

THE MODERN CONCEPTION OF EARLY PHTHISIS

SIR,—In reading over Dr. Camac Wilkinson's criticism of Dr. Morlock's observations on early phthisis, in your issue of May 9th (p. 818), I find that Dr. Wilkinson apparently places but small reliance on the *x*-ray appearances, and warns "general practitioners not to accept the teaching that *x*-ray examinations are the 'be-all and end-all' either in diagnosis or in treatment." He states also that: "We dare not trust implicitly to *x*-ray shadows in laying the foundation of a new theory. . . . Certainly *x*-ray shadows should never displace pathological anatomy or a thorough physical examination."

It would seem to me that the radiographic appearances would form an ideal method of studying pathological anatomy, pre-eminently in diseases of the lungs; and that an opinion on the condition of the chest given by a radiologist who is an expert in such examinations, and who at the time when his report is made has no knowledge of the clinical findings, offers a chance of arriving at the correct diagnosis which is not at the moment equalled by any other method. It is understood that at the present time radiographic methods have reached such perfection that the diagnosis is made by actually observing the tubercles in the lung parenchyma. But let the radiologist realize that it is often quite impossible to estimate the degree of activity of the lesion without the aid of serial radiography over a period of months. The diagnosis of phthisis is made by observing the presence of tubercles and certain types of cavity formation, and special care is always taken not to call opacities which do not exhibit these features phthisis. In those rare cases where a positive sputum is discovered and there is an absence of *x*-ray changes in the lung, one finds that the physician will always have further sputum examinations and a second radiographic examination made, to confirm.

We are all working together with a common object in view—the diagnosis of disease—and any method which will lead to the earlier recognition of phthisis should be followed up; but do not let it be thought that there is any doubt about the position of radiology in assisting in the diagnosis of pulmonary disease.—I am, etc.,

London, W.1, May 28th. J. V. SPARKS.

MICROCEPHALY

SIR,—In his very valuable survey of the present knowledge of cortical structure in relation to mental disease, Professor R. J. A. Berry (*British Medical Journal*, May 16th) uses the word "microcephaly" as though, apparently, he regards it as synonymous with the smallness of brain that is common in most aments. I think, from other of his writings, that this is his view. It is, however, usually taught that microcephaly is a very definite condition marking one of the types of mental deficiency, and that its character depends far more on shape than on size of head. If some authorities use the word in the general sense and others in the particular, we are left in confusion, and misunderstanding is the result. How can the difficulty be overcome?—I am, etc.,

London, S.W.17, May 27th. NOEL H. M. BURKE.

PITUITRIN AND OBSTETRIC SHOCK

SIR,—The letter in the *Journal* of May 30th (p. 955) over the signature of Dr. Peter McEwan suggests that so-called pituitary shock may be due to an idiosyncrasy on the part of the patient. It would be interesting to know whether fluids had been withheld from the patient for any considerable time before the pituitary extract was administered, because investigation of one or two similar cases recently has indicated that a depletion of body fluids may be the predisposing factor leading to pituitary shock. If this is the correct explanation it would suggest that posterior pituitary extract, in which the pressor, antidiuretic, and oxytocic principles are all represented, should not be given to a patient in a dehydrated condition, but that pitocin, the separated oxytocic principle, should be employed in preference.

Dr. McEwan uses the word "pituitrin" presumably in a generic sense, but actually "pituitrin" is applied solely to the posterior pituitary extract as first offered to the medical profession by Parke, Davis and Co. The use of the word "pituitrin" to refer to posterior pituitary extracts in general is particularly unfortunate, in view of Dr. McEwan's statement that "pituitrin used to vary notably in strength." For many years prior to the introduction of the Therapeutic Substances Act "pituitrin" was standardized on both its oxytocic and pressor values, and the strength of the solution has always been remarkably constant. In fact, the strength adopted all along for "pituitrin" is precisely the same in respect of oxytocic action as that which is now the obligatory standard in the regulations under the above-mentioned Act, which requires all posterior pituitary extracts to be of uniform potency in respect of oxytocic value only.

It is noted that in the case referred to by your correspondent the pituitary extract was given in doses of 1 c.cm.—a total of 3 c.cm. in five and a half hours. This dose would surely seem to be excessive, because in the light of the work of Bourne and Burn it is now generally agreed that the optimum dose for obstetrics is two to three units (0.2 to 0.3 c.cm.), and this dose should seldom be exceeded. In the treatment of post-partum haemorrhage a dose of 0.5 c.cm. or even 1 c.cm. may be permissible.—We are, etc.,

London, W., June 1st. PARKE, DAVIS AND CO.

EXAMINATION OF MOTORISTS CHARGED WITH DRUNKENNESS

SIR,—Insensibility of a motorist—as in the case referred to by Dr. Brooks Keith in his letter in to-day's *Journal*—one would think was a condition sufficiently serious to justify the police calling in medical aid, even for the following purposes only:

1. To verify that the unconsciousness was in fact due to alcohol and not to other causes—illness, etc.

2. To decide whether the person was physically fit to be detained in a police cell.

These are not such simple matters as can safely be left for a non-medical person to decide. Experience as a police surgeon has afforded me several instances of so-called "obvious drunkenness," which medical examination showed to be due to causes other than alcoholic intoxication. In such cases it is due to the public, as well as to the arrested individual, that the diagnosis should be put beyond a doubt—essentially a doctor's job. Fortunately, in this country the judges at trials do require such medical evidence. Otherwise there might be still more wrongful convictions—to say nothing of the cases of "drunk or dying."—I am, etc.,

London, S.E.11, May 30th. REES PHILLIPS, M.D.

BIRTHDAY HONOURS

The Honours List, issued on June 3rd, on the occasion of His Majesty's birthday, includes the names of the following members of the medical profession.

K.C.V.O.

Major-General Sir S. GUISE-MOORES, K.C.B., C.M.G., House Governor and Medical Superintendent, Osborne Convalescent Home for Officers.

Knights Bachelor

PENDRILL CHARLES VARRIER-JONES, M.A., M.R.C.P., M.R.C.S., Founder and Medical Director of Papworth Village Settlement for the Treatment of Tuberculosis.

Colonel SAMUEL RICKARD CHRISTOPHERS, C.I.E., M.B., F.R.S., I.M.S. (ret.), Director, Central Research Institute, Kasauli.

Lieut.-Colonel HENRY ALBERT JOHN GIDNEY, F.R.C.S.Ed., I.M.S. (ret.).

C.B. (Military)

Surgeon Rear-Admiral ALFRED J. HEWITT, C.B.E.

Major-General WILLIAM R. BLACKWELL, C.M.G. (late R.A.M.C.), K.H.S., Deputy Director-General A.M.S., War Office.

Major-General JAMES D. GRAHAM, C.I.E., M.B., I.M.S., K.H.S., Public Health Commissioner, India.

C.M.G.

WILLIAM N. ROBERTSON, C.B.E., M.B., Vice-Chancellor, University of Queensland.

C.B.E. (Military)

Wing Commander WILLIAM W. SHORTEN, F.R.C.S.Ed., R.A.F.

C.B.E. (Civil)

ALBERT L. HOOPS, M.D., Principal C.M.O., Straits Settlements.

ARTHUR H. NORRIS, *M.C.*, M.R.C.S., L.R.C.P., D.P.H., Chief Inspector of Reformatory and Industrial Schools, Home Office.

O.B.E. (Military)

Lieut.-Colonel CHARLES J. COPPINGER, R.A.M.C.

O.B.E. (Civil)

FREDERICK W. ALEXANDER, M.R.C.S., D.P.H., formerly M.O.H. for Bromley and Poplar Districts.

ERIC DENHOLM PRIDIE, D.S.O., Medical Inspector, Sudan Medical Service.

ALFRED C. NORMAN, M.D., Director of the *X*-ray and Electrical Institute, Baghdad, Iraq.

M.B.E. (Military)

Lieutenant (Senior Assistant Surgeon) A. N. DE GRUYTHER, I.M.D.

Lieutenant (Senior Assistant Surgeon) JAMES BERCHMANS D'SOUZA, I.M.D.

First Class Assistant Surgeon RICHARD C. GALE, I.M.S. (attached Iraq Levies).

M.B.E. (Civil)

SHIVRAM WAMANJI PATIL, medical practitioner, Bombay.

JOCELYN MAINGARD, medical officer, Mauritius, for services in the relief of sufferers from the recent hurricane.

ROGER PILOT, Medical Officer, Mauritius, for services in the relief of sufferers from the recent hurricane.

Honorary M.B.E. (Civil Division)

ZAHI HADDAD, M.O.H., Haifa, Palestine.

Kaisar-i-Hind Medal (Bar)

HENRY T. HOLLAND, C.I.E., M.B., F.R.C.S., C.M.S., Quetta, Baluchistan.

Kaisar-i-Hind Medal (First Class)

Miss HILDA KEANE, M.D., Medical Superintendent, Victoria Zenana Hospital, Delhi.

Miss ADELAIDE WOODHARD, Doctor in Charge, American Presbyterian Memorial Hospital, Fatehgarh, U.P.

IAN ROSS ANDERSON, M.O. in charge, Kalna Mission Hospital of United Scottish Churches Mission, Bengal.

Imperial Service Order (Companions)

Major E. F. HOTTINGER, L.M.S.S.A., I.M.D., Civil Surgeon, Punjab.

LORENS ARTHUR PRINS, Inspecting Medical Officer, Ceylon.

The Order of Merit is conferred upon Sir WILLIAM HENRY BRAGG, K.B.E., F.R.S., in recognition of his eminent services to the advancement of science.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons reassembled on June 2nd, when the third reading of the Representation of the People Bill was taken. Scottish Estimates were put down for the following day, and a Probation of Offenders (Scotland) Bill for June 5th. During the week the House was asked to approve a time-table for the coming debates on the Finance Bill. The House of Lords had no business this week.

On June 2nd Lord Astor addressed the Liberal Parliamentary Party on the grading of milk.

Infant Mortality in India

On June 2nd Mr. BENN, replying to a question, said that figures of the infantile death rate in the cities of Bombay and Madras for 1930 were not available. In 1929 the infantile death rate (under 1 year) in Bombay city was 300.66 per 1,000 registered births. Of the deaths of infants, about 3.3 per cent. were registered as due to small-pox. In the same year in Madras city the infantile death rate was 259.2 per 1,000 registered births. In 1929, 503 deaths from small-pox (about 8.4 per cent. of the total deaths) were registered, but details as to how many were those of infants were not available. The epidemic was the severest since 1905, with the exception of 1924.

Mr. BENN, on June 2nd, informed Mr. Freeman that no exact figure could be given of the average age of mortality in British India. In 1928 (the latest year for which materials for calculating were available) the average age was about 23 years.

Mr. BENN stated that in 1929–30 the gross expenditure of British India (Central and Provincial) on medical and public health services was 6,61,95,450 rupees. This was 2.9 per cent. of the gross revenue for the year.

Universities and Colleges

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—T. F. Davies, O. L. Matthews, C. F. Vieyra, V. M. White.

MEDICINE.—T. F. Davies, B. N. Halder, T. L. O'C. Ryan.

FORENSIC MEDICINE.—G. I. Benjamin, A. N. Coondoo, T. F. Davies, B. N. Halder, A. E. Mathews, S. Ramarao, L. B. Reeves, D. N. Ryalls, H. W. Toussaint, M. R. Tuteur-Samuel.

MIDWIFERY.—M. Belo-Zercovsky, T. F. Davies, W. B. Mattar, T. L. O'C. Ryan, M. R. Tuteur-Samuel, C. F. Williamson.

The diploma of the Society has been granted to Messrs. G. I. Benjamin, T. F. Davies, and A. E. Mathews.

The Services

TERRITORIAL DECORATION

The Territorial Decoration has been conferred upon Lieut.-Colonel G. L. Leathes Lawson, R.A.M.C.(T.F.) (ret.), under the terms of the Royal Warrant of October 13th, 1930.

INDIAN MEDICAL SERVICE DINNER

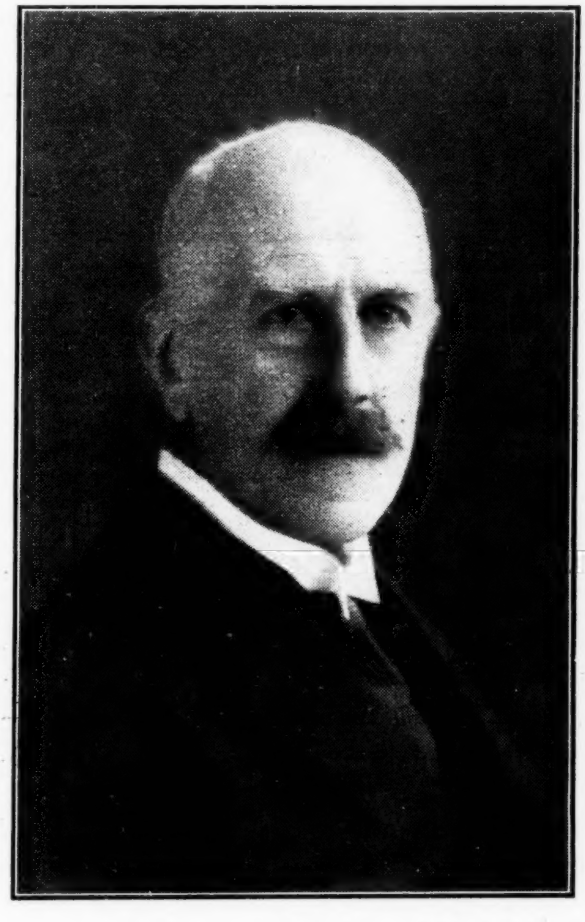
The annual dinner of the Indian Medical Service will be held at the Trocadero Restaurant on Wednesday, June 17th. Colonel R. A. Needham, C.I.E., D.S.O., has been invited to take the chair. Tickets and all particulars may be obtained from the joint honorary secretary, Major Sir Thomas Carey Evans, *M.C.*, I.M.S. (ret.), 31, Wimpole Street, W.1.

Obituary

SIR HERBERT WATERHOUSE, M.D., F.R.C.S.

Consulting Surgeon, Charing Cross Hospital; President, Medical Defence Union

As announced in our last issue, Sir Herbert Waterhouse, for many years surgeon to Charing Cross Hospital, died suddenly at his residence in Wimpole Street on May 23rd. About a year ago he had a serious accident, being knocked down by a motor car which mounted the pavement in Harley Street; he was unconscious for several days, but after his recovery continued to take an active part in the work of the Medical Defence Union, of which he was president.



Herbert Furnivall Waterhouse was born in London in 1864, and studied medicine in the University of Edinburgh, where he won the Goodsir Memorial Prize and the Dickson Travelling Fellowship. He graduated M.B., C.M. with distinction in 1887, and was awarded a gold medal for his M.D. thesis in 1889. In 1890 he obtained the Fellowship of the Royal College of Surgeons of England. Before leaving Edinburgh he had held office as president of the Royal Medical Society, and served as resident surgeon at the Royal Infirmary. A period of post-graduate study at Gröningen was followed by appointment as resident surgeon at the Glasgow Royal Infirmary. Then, in 1890, Waterhouse came to London and began his long association with Charing Cross Hospital, to which detailed reference is made below. Later he was appointed surgeon to the Victoria Hospital for Children, Chelsea, to the Osborne Home for Officers, and to the Kensington Children's Hospital. For many years he was examiner in surgery for the Universities of London, Manchester, Birmingham, and Liverpool. He was also a member of the Court of Examiners of the Royal College of Surgeons of England from 1909 to 1919, and served on the Council from 1915 to 1923. He was the author of articles on diseases of the mouth, palate, tongue, tonsils, and pharynx in Treves's *System of Surgery*, and on affections of the nose, larynx, and oesophagus, and other diseases, in Quain's *Dictionary of Medicine*. In recognition of his war services as surgeon-in-chief of the Anglo-Russian Hospitals he received the honour of knighthood in 1917. Lady Waterhouse died a year or two ago, and he is survived by two daughters.

Sir Herbert Waterhouse was for many years a member of the British Medical Association, and filled the offices of secretary and president respectively of the Section of Diseases of Children when the Association held its Annual Meeting in London in 1895, and in Glasgow in 1922.

Mr. ERIC A. CROOK, dean of the Medical School of Charing Cross Hospital, writes:

The loss of Sir Herbert Waterhouse is one which will be felt by all those who have known him, and most especially by those who have been associated with him at Charing Cross. It was forty-one years ago that he was appointed lecturer in anatomy, joining the hospital after a distinguished student career at Edinburgh University, where he obtained the gold medal in the examination for the degree of Doctor of Medicine, and distinction in that of Master of Surgery. In 1891 he was elected assistant surgeon to Charing Cross Hospital, and in 1903, on the retirement of Mr. Bloxam, he became surgeon to the hospital. He was dean for five years (1901–6), a period of great progress in the Medical School, which was attributable in no small measure to the enthusiasm and zeal that he showed in every sphere of his life. He held the respect and affection of those working under his direction, and was always ready to give help and advice in difficulties that were taken to him. His guidance was always helpful, but his directions had invariably to be put into action without delay. His kindness was best shown by the great personal interest which he took in those students who worked directly under him, and it was his proudest boast that three of his house-surgeons were subsequently elected to the staff of the hospital — Stephen Fenwick, Norman Lake, and Jennings Marshall. As a teacher Sir Herbert's methods were essentially practical, and were dramatically illustrated. He was an advocate of study at the Continental universities as an important part of professional education. During his time as dean of the Medical School, Professor Pavlov, Professor William Welch, and Sir William Macewen were invited to deliver the Huxley Lectures. He was elected a member of the Council of the Royal College of Surgeons in 1915, and served his full term of eight years. He was also an examiner in anatomy and surgery at this time. As an operator and clinician his outstanding abilities are universally known, and need no further comment. In his work outside the hospital, he took very great interest in the Clinical Section of the Royal Society of Medicine, and it will always be remembered how, during his presidency, he raised this Section from its lowest ebb to its present prominent position. Since his retirement from the active staff of Charing Cross Hospital some seven years ago, he has given his valuable services as a member of the council.

Dr. JAMES NEAL, General Secretary of the Medical Defence Union, writes:

By the death of Sir Herbert Waterhouse the Medical Defence Union has sustained a very severe loss. From the time he was elected a member of the Council, in February, 1922, he always took a keen interest in the

work of the Union, and when he became President, in October, 1925, he devoted himself with great enthusiasm to the duties of his office. He was much more than a figurehead ; he made it his business to master the details of every difficult case, and spared no effort to safeguard the interests of our members and to repel unjust attacks upon them. Although a busy man, whose time was still largely occupied by professional work, Sir Herbert was always ready to give his close attention to the affairs of the Union. No matter how difficult the problem to be faced, he could always be relied upon to take a broad and statesmanlike view of the available evidence, and his wide experience in medico-legal problems, his sound judgement, and his shrewd common sense greatly assisted the Council to arrive at wise decisions, to the great benefit of our members. His interest in the work never flagged, and by his invariable courtesy, his conspicuous fairness, and his unfailing good temper, he gained the confidence of all he came in contact with, and earned the esteem and affection of his colleagues on the Council. Sir Herbert had the happy knack of combining the *suaviter in modo* with the *fortiter in re*, and he possessed those other personal qualifications which make the ideal president. His valuable services cannot be overestimated, though his work was largely done behind the scenes, and was known only to a few. He will be greatly missed.

[The photograph reproduced is by Thomas Fall, London.]

THE LATE PROFESSOR HALLIBURTON

We are indebted to Sir FREDERICK HOPKINS (President of the Royal Society) for the following appreciation:

To know that Halliburton is with us no more is to feel a sad break with the past, and to be sensible of a gap, no less sad, in one's intellectual environment. Ill-health had kept him out of the arena for some years, but to the last one could reckon on his interest in the things there done. When perforce he went out of the game he remained one of those whose approval makes the continuance of the game worth while. It seemed part of the established order of things that he should be there to approve when approval was earned.

The progress of biochemistry was always dear to Halliburton ; we who have been his contemporaries, but have been allowed to outlive him, welcome our younger colleagues, and recognize how much more they know than we knew in our youth ; but we sadly miss converse with those who remember past struggles. Halliburton himself began to contribute to knowledge when young enough. He was doing good original work when but little more than twenty, and when his mind was not yet free from the inhibitions wrought by examinations. He took a science degree when eighteen, and qualified at two-and-twenty. Yet in the following year he combined the acquisition of the M.D. with the communication of excellent original work to the Physiological Society. The remarkable industry thus displayed was characteristic of his whole career. One wonders, indeed, if " industry " is quite the right word. He had a *flair* for doing good and continuous work without apparent effort. This was especially evident in his literary activities. It was refreshing, for instance, to note the seeming ease with which he abstracted current literature from the journals—a troublesome task which he often undertook to spare others the trouble. Odd moments, the vacant quarters of an hour, so often wasted, would with him contribute to the production of adequate abstracts from lengthy papers. So with the books he wrote or edited: the work he put into them, always finished at the appointed time, seemed to his friends to be effortless. If, however, Art may conceal Art, there is perhaps an effort which conceals effort. If so, as in the former case, it is genius.

It must always be remembered that Halliburton was, in the fullest sense of the word, a pioneer. It may be that at first he turned to the chemical side of physiology because its manipulations were more possible than those of some other sides for one who could use his right hand but little. Yet he quickly made this branch of science his own, and was the first in this country, by his work and writings, to secure for it general recognition and respect. Like all pioneers, he had at first to be content with poor equipment for the work he wished to do.

To speak of Halliburton without reference to his gifts of true friendship and generous sympathy is impossible. He was wholly free from small motives, and rejoiced in the success of others, whether pupils or friends. I, myself, though in years no younger than he, was a laggard in science. When I started I owed much to the stimulus of his approval. It is sad to feel that I cannot try to win it once more.

Dr. ALFRED JOHN SEPTIMUS ROE died at his home in Beverley Road, Hull, on May 16th, after a long and painful illness. He was born at Plymouth in 1864, and, after studying at the School of the Royal College of Surgeons in Ireland, qualified L.R.C.S.I. in 1884 and L.R.C.P.I. in 1886. After a short time in Durham he went to Hull as resident surgeon to the Hull and Sculcoates Dispensary. He was later in general practice at Hull, giving it up about twenty-five years ago to specialize in diseases of the ear, nose, and throat. He was appointed honorary aural surgeon and laryngologist to the Dispensary. The founding of this department of the institution was due to his pioneer efforts. Of a quiet and retiring disposition, Dr. Roe, though keenly interested in national and medical politics, took no active part in them. He was a member of the British Medical Association. His only son died during the war.

Medical News

The summer dinner of the Australian and New Zealand Medical Association in England will be held at the Trocadero Restaurant, Piccadilly, on Friday, June 12th, at 8 p.m., with Mr. T. P. Dunhill, C.M.G., in the chair. Dr. F. N. Kay Menzies will be present as the official guest of the association. All medical visitors from Australia and New Zealand, whether members of the association or not, are invited to be present. The honorary secretaries are Mr. E. T. C. Milligan and Mr. Philip J. Jory, 26, Queen Anne Street, W.1 (Langham 1579).

The opening meeting of the centenary celebrations of the Harveian Society of London will be held at St. Bartholomew's Hospital on Thursday, June 11th, at 3 p.m., with the president, Sir Thomas Horder, in the chair, when Dr. Raymond Crawfurd will deliver an oration. On Friday, June 12th, the Buckston Browne dinner will be held at the Grocers' Hall, Prince's Street, E.C., at 8 p.m., and on Saturday, June 13th, a pilgrimage will be made to Hempstead Church, Essex, where the Bishop of Colchester will deliver an address at 12 noon.

The annual provincial meeting of the Section of Surgery of the Royal Society of Medicine will be held at the Manchester Royal Infirmary on Wednesday, June 10th. The train will leave Euston Station at 10.30 a.m., arriving at Manchester at 2.10 p.m. Operating sessions will be held from 2.30 to 4.30 p.m., and at 4.45 p.m. cases and specimens will be shown. The return journey will be by the train leaving Manchester at 6.20 p.m.

The sixth annual MacAlister Lecture will be delivered before the London Clinical Society at the London Temperance Hospital on Tuesday, June 16th, at 9 p.m., by Major Richard Rigg, chairman of the hospital. The subject is " Medicine and the city guilds." All medical practitioners are invited to be present, and may bring friends (ladies or gentlemen).

The annual meeting of governors of Epsom College will be held at the Royal College of Physicians, Pall Mall East, S.W., on Friday, June 26th, at 4 p.m., when the result of the voting for pensioners, annuitants, and foundation scholars will be announced.

The next meeting of the Medical Society of Individual Psychology will be held at 11, Chandos Street, Cavendish Square, W., on Thursday, June 11th, at 8.30 p.m., for a discussion on "The treatment of sexual impotence by the methods of individual psychology."

The annual general meeting of the Paddington Medical Society will be held on Tuesday, June 9th, at 9 p.m., at the Great Western Royal Hotel, Paddington. The president (Dr. G. de Swietochowski) will deliver an address entitled, "Medical ideals and practice." Non-members will be welcome. The honorary secretary is Dr. J. Cohen, 23, Westbourne Park Road, W.2.

The annual meeting of the Association of Local Government Medical Officers of England and Wales (formerly the Poor Law Medical Officers' Association) will be held on Thursday, June 11th, at 6 p.m., at the Holborn Restaurant, with the president, Sir Arthur Newsholme, in the chair. The meeting will be followed by an informal dinner (morning dress) at 6.30 p.m. Any local government medical officer will be welcome to the meeting and the dinner, the charge for which will be 8s. 6d. Notice of intention to be present should be sent immediately to the honorary treasurer, Mr. Frank Greenwood, Bank Chambers, 150–152, High Street, Stoke Newington, N.16.

At the annual meeting of the Fever Hospitals Medical Service Group of the Society of Medical Officers of Health, to be held at 1, Upper Montague Street, Russell Square, W.C., on Friday, June 12th, at 3.15 p.m., a paper on "State control of therapeutic substances" will be read by Dr. Percival Hartley of the Standards Division, National Institute for Medical Research. Visitors who are interested in this subject will be welcome.

On May 31st a Sunday post-graduate course was started at Charing Cross Hospital. Lectures will be given at 10.45 a.m. and at 11.45 a.m. every Sunday until July 26th. Further information can be obtained from the secretary of the hospital.

Particulars of the lectures and demonstrations arranged for next week by the Fellowship of Medicine will be found at page 232 of the *Supplement*. The special evening lectures to candidates for the M.R.C.P. are being continued; these are delivered at 11, Chandos Street, Cavendish Square, at 8.30 p.m.; tickets, 10s. 6d. each lecture, may be taken at the lecture hall. A demonstration on radium will be given by Mr. Duncan Fitzwilliams on June 8th at 2 p.m., at the Mount Vernon Hospital, Northwood, and on June 9th, at 5 p.m., Mr. Lowndes Yates will demonstrate cases at the Central London Throat, Nose, and Ear Hospital; there is no fee for attendance at either demonstration. The remaining special courses for June are: diseases of children, at the Children's Clinic and other hospitals; tropical diseases, at the Hospital for Tropical Diseases; medicine, surgery, and the specialties, at the Prince of Wales's Hospital; fractures, at the Royal Albert Dock Hospital; diseases of children, at the St. John's Hospital, Lewisham; proctology, at St. Mark's Hospital; and cardiology, at the National Heart Hospital. Syllabuses and tickets from the Fellowship of Medicine, 1, Wimpole Street, W.1.

The next award of the medal of the Hunterian Society of London will be made in 1932, and is open for competition to all general practitioners of Great Britain, Ireland, and the Channel Islands. The medal will be awarded for the best essay on some medical subject chosen by the writers, and essays must reach the honorary secretaries on or before December 31st, 1931. The president and council have decided that the medal shall be of gold, and not of silver as heretofore. The rules governing the award may be obtained on application to the secretaries, Dr. D. C. Norris, 14, City Road, Finsbury Square, E.C.1, and Mr. Andrew McAllister, 79, Wimpole Street, W.1.

The annual congress of the Rumanian Medical Association will be held at Constantza from June 13th to 15th.

Under the auspices of the Association for Post-Graduate Teaching of the Hospitals of Paris a series of lectures and demonstrations on tonsil surgery will be given from June 15th to 17th at the Necker Hospital for Children. The subjects to be dealt with include the evolution of tonsillar surgery; indications and contraindications from the laryngological standpoint; pre-operative steps; various techniques; post-operative care and the treatment of complications; and the medical point of view. The demonstrations will be conducted in English as well as in French. The fee is 300 francs, and inquiries should be addressed to Dr. Magdelaine, Hôpital Necker-Enfants Malades, 149, Rue de Sèvres, Paris.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM* 9861, 9862, 9863, and 9864 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is **16**, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Leucoplakia

"G.P." (London) writes: Can any of your readers suggest treatment for a persistent case of leucoplakia of the mouth and tongue? Balsam of Peru and all the usual remedies for stomatitis have already been tried. Apart from this, the patient is in good general health.

Gestation Period in Animals

"Z" writes: Could any of your readers refer me to a book which gives the periods of gestation for animals, and their average weight at birth?

⁂ Flemming's *Veterinary Obstetrics* (new edition) gives the data for the domestic animals. For non-domestic animals *Tabulae Biologicae* might be consulted. If further information is required our correspondent might write to the Director, Imperial Bureau of Animal Genetics, Edinburgh University, stating a definite query.

Scleroderma with Pernicious Anaemia

Dr. ALEX. PATTON (Widnes) writes: Can any reader enlighten me on the association of brawny, pigmented skin with Addison's disease or the anaemias, particularly as regards etiology? I have a patient whose blood picture is that of pernicious anaemia, with achlorhydria and signs of subacute spinal degeneration. He has also a low blood pressure, marked skin pigmentation, and hard, brawny skin, especially over the legs and fingers. Thirteen years ago he had acute phosgene poisoning, giving the usual chest symptoms. He has also suffered at intervals from dermatitis of the hands. One would be interested to hear of similar cases, evidently toxic, and whether they often arise spontaneously or industrially.

Inflammation at Site of Old Vaccination Scars

Dr. L. I. HARDY (Hull) writes in reply to Dr. W. J. Ledgerwood's inquiry in the *Journal* of May 23rd (p. 919): I would suggest that the lesion is self-inflicted. The age, sex, and site of lesions (left arm) and the fact that they (probably) did

not resemble any straightforward skin disease are in conformity with my suggestion as to their origin. Treatment should be suggestive—that is, paint with brilliant green, and warn the patient that if anything else is applied severe results will follow, even to necessity for amputation! The alternative is strict isolation and observation in hospital.

Income Tax

Professional Residence : Subletting

"LEASEHOLDER" sublets three consulting rooms unfurnished for, say, £1,000. The relative Schedule A assessment is £392. Should the £1,000 be returned for assessment under Schedule D or any other schedule?

*** The judicial decision referred to in a recent answer in this *Journal* was that of the House of Lords in the case of Salisbury House Estate Ltd. *v.* Fry. The facts in that case were, briefly, that the amount of office rents received by the company less the company's annual expenses were in excess of the amount of the Schedule A assessment. The revenue authorities sought to assess the excess under Schedule D, and the company contended that (apart from any profit made directly on the payments for cleaning services, etc.) rents of unfurnished sets of rooms were assessable under Schedule A *only*, and that Schedule D was not applicable. The House of Lords accepted the company's contention, and the Schedule D assessment was quashed. Applying that decision to the facts stated by "Leaseholder," it would appear that the £1,000 cannot be charged under Schedule D, and that to the extent to which it is not covered by the Schedule A assessment it escapes income tax.

Cash Basis

"A. T. V. D." asks, "Are doctors' taxes made up on the actual bookings (less known bad debts), or are they taxed on the actual money earned during the past year?"

*** It is beyond dispute that "the full amount of the balance of the profits or gains"—to quote the words of the statute—on which the tax is chargeable should strictly be calculated by deducting the year's expenses from the year's bookings less a carefully estimated allowance for bad and doubtful debts. The point has not been the subject of a judicial decision, because no one has considered it worth pursuing to the High Court. At the same time the computation of a proper allowance for doubtful debts is so difficult in the case of a medical practitioner that the income tax authorities have for many years accepted returns based on cash receipts less expenses. The reason is that, taking one year with another in a normal practice, the results are the same. Where circumstances are such that this assumption is upset, the authorities refuse, as they are entitled to do, to accept the cash basis—for instance, where a practice is new, or is expanding rapidly, so that the cash profits are lagging behind the true profits.

Sickness Insurance Premiums

"F. B. T." inquires whether these premiums can be treated as professional expenses if, as he understands, the payments for sickness benefit would not be taxable.

*** The position is as "F. B. T." suggests. The payments are not made in the performance of the work of the practice, but rather to provide for someone else being paid to carry it on if the insured is not able to do so. Consequently they cannot be deducted as professional expenses, and, as a natural corollary, the benefit payments resulting from the policy are not professional receipts, and are not liable to income tax.

LETTERS, NOTES, ETC.

Axis-traction Forceps

Dr. R. H. BOTHAM (Darlington) writes: I have been interested in the correspondence relating to Wagstaff's forceps in the *Journal*, and am in agreement with the writers who approve of them. But the chief point of interest in connexion with them is whether their method of achieving axis-traction, or that used in Tarnier's forceps and its modifications, is the correct one. I think this question should be submitted to some expert in mechanics. For myself, I think Wagstaff is right, and that the method used by Tarnier and his imitators is needlessly elaborate, and therefore needlessly expensive. My own forceps, a pair of Assalini forceps with the handles curved back, are made on the same principle, and achieve, I think, an even greater simplicity than Wagstaff's.

Dr. MICHAEL STARK (Wanstead Park, Essex) writes: In 1923 my father, the late Dr. Campbell Stark, published his *Index to General Practice*, in which he strongly advocated the use of Wagstaff's midwifery forceps, and always insisted that, on the ordinary bed, it was much easier to apply the upper blade first. To facilitate this he had his forceps made with the lock reversed. I understand that quite a number of these instruments have been ordered since 1923, but that some practitioners have not found them as easy of application as they were led to suppose. I have recently had a visit from a representative of one of the leading instrument makers, and was surprised to find that they had never supplied these forceps with the reversed lock. In view of the number of these forceps that have been ordered I thought I would seek this means of pointing out a possible explanation of the difficulty that users may have experienced.

Neoplasm following War Service

Dr. RICHARD KERRY (Montreal) writes: A case somewhat similar to that referred to by Mr. Howard Collier in your issue of April 18th (p. 666) came to my notice a couple of years ago. A man who had been gassed twice, on active service, was found to have a large fungating growth in the larynx early in 1927. I took the ground that the lesion had developed in tissue which had been damaged during the war, and that the man was a war casualty. After some argument the Pensions Board granted the man a pension, which, unfortunately, he did not live to enjoy.

Garden Sanitation

Reference has lately been made in these columns to a great teacher and experimenter in the principles of rural sanitation, Dr. George Vivian Poore of University College Hospital, London, who died in 1904. Some of our readers will be glad to know that work is going on near Cheltenham towards a memorial to him—a scheme which was started about a year or more ago. A small estate of ten workmen's houses is to be fitted out with the garden sanitation which Poore advocated; and, later, it is hoped, a small building will be erected in his memory. Professor J. W. Scott of University College, Cardiff, who is supervising the work for the National Homecroft Association, hopes by the end of this summer to be able to show at least two models complete, and perhaps more if funds allow. He will be glad to communicate with readers interested in Poore's work and memory, and any such would be welcomed at a meeting of the committee in charge, which is to be held at 2.30 p.m. on Thursday, June 11th, at Church House, Dean's Yard, Westminster. Dr. F. G. Crookshank will be in the chair, and Professor Scott will present a report.

Medical Golf

The annual summer meeting of the Medical Golfing Society was held on May 28th at Walton Heath. The ninety-six competitors were the guests of Lord Riddell, and greatly enjoyed his hospitality. Results were as follows: *Lancet* Cup (scratch), Dr. W. H. Lamplough, all square. Henry Morris Cup (handicap), Dr. W. H. Lamplough, 2 up. Class 1: First prize—Dr. J. Wallace. Second prize—Dr. W. Gilliatt. The best score for the last 9 holes was returned by Mr. George Dawson. Class 2: First prize—Dr. C. H. Ilott. Second prize—Dr. C. Branwell. The best score for the last 9 holes was returned by Dr. Rolf Creasy. Foursomes: Winners—Mr. Rowley Bristow and Dr. W. H. Lamplough, after a tie with Dr. Galletly and Dr. McGrath. The Knock-out Tournament and Milsom Rees Cup was won this year by Sir Kenneth Goadby, the runner-up being Dr. Bathurst.

A Warning

A London surgeon informs us that a young man, about 25, fair complexion, medium height, who states that his father, now deceased, was a doctor at Purley, and that he is an officer in the Flying Corps, is calling on consultants known to his late father and borrowing small sums of money. Our correspondent has put the matter in the hands of the police, and we advise others to do the same.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 74, 75, 76, 77, 78, 79, 82, 83, and 84 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 80 and 81.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 231.

A Lecture
ON
THE CAUSATION OF STONE IN INDIA*

BY
ROBERT McCARRISON, C.I.E., M.D., D.Sc.,
HON. LL.D., F.R.C.P.
HONORARY PHYSICIAN TO THE KING; COLONEL, INDIAN MEDICAL SERVICE; DIRECTOR, NUTRITIONAL RESEARCH, INDIAN RESEARCH FUND ASSOCIATION

Urinary calculus is very prevalent in India. From reports, for which I am indebted to civil surgeons, it appears that, during the years 1926–28, 34,325 persons were found to be suffering from the disease; or 1 in 10,000 of the population. These represent the combined records for three years, and relate only to persons seeking medical relief; but when it is remembered that hospital patients form but a relatively small fraction of the people of India, and that hospitals and dispensaries are but sparsely distributed, it may safely be assumed that the disease is more prevalent than these figures indicate.

The incidence of stone varies greatly in different parts of the peninsula; it is so prevalent in some localities that they are known as "stone-areas," while in others it is rare or unknown. The prevalent belief that India in general is a land of "stone" is erroneous: parts are; others are not. Thus, taking the above figures as our index of its prevalence, we find such variations as the following:

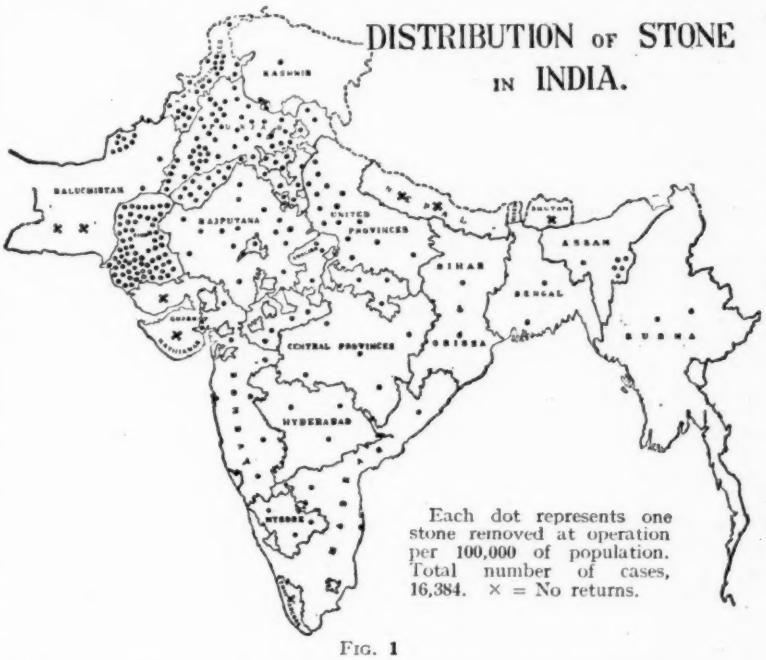


FIG. 1

Cases per 100,000 of Population

In India generally	10
In Dera Ghazi Khan (Punjab)	438
In Hyderabad (Sind)	266
In Sukkur (Sind)...	156
In Manipur (Assam)	84
In Dera Ismail Khan (N.W.F.P.)	62
In Saharanpur (U.P.)	25
In Ahmednagar (Lower Bombay)	13
In Benares (U.P.)...	5
In Sylhet (Assam)	2.8
In Malabar (Madras)	0.3
In Kolaba (Lower Bombay)	0

Of the 34,325 sufferers from stone, 16,384, or approximately 1 in 20,000 of the population, had their stones removed at operation. I have taken this figure as my index of incidence and prepared the spot map (Fig. 1). Each spot represents one stone removed at operation per 100,000 of the population of the particular district in which the patients lived. This map affords a fair indication of the distribution of the malady. It will be noted that the great "stone-area" of India extends from Sind, the North-West Frontier Province, and the Punjab into the western parts of the United Provinces. As we pass eastward towards Bengal and Assam the prevalence of the disease gradually diminishes; similarly, it diminishes towards the south and south-east until in the southern parts of the Bombay Presidency, Mysore, Hyderabad, and Madras the malady is relatively rare. It is relatively rare also in Burma. No reports were received from the greater part of Baluchistan, which abuts on Sind, and in which there is reason to believe the disease is also common; nor from Kathiawar, nor Travancore in the south. But these lacunae do not influence the general result, which, from the point of view of the investigator, is a significant one. It is that there are local factors which exercise a profound influence on the occurrence or non-occurrence of the malady. These influences may be geological, orographical, climatic, racial, nutritional, or microbic.

GEOLOGICAL INFLUENCES

Urinary calculus occurs for the most part on soils of the Post-Tertiary Period; indeed, a map of the geological features of India shows a great post-tertiary band extending eastward from the Kirthar, Sulaiman, and Hindu Khush Mountains on the west and north through the cultivated plains of sub-Himalayan India to Bengal and Assam; and comprising the great plains of the Indus, the Thar or Indian Desert, regions eastward of "the five rivers" (Punjab), and the plains of the Ganges and its tributaries. It is in these plains that the great majority of all urinary calculi occur. At first sight one might be inclined to attribute significance to this association with Post-Tertiary rocks. But closer scrutiny of our data shows that no great importance can be attached to it, since it is in the plains of the Indus, and not in those of the Ganges, that the great majority of calculi occur.

OROGRAPHICAL INFLUENCES

While stone is most common in the plains of Northern India, it is by no means confined to them. Far up in the mountain ranges of Dardistan, and throughout the Himalaya, one finds it also. In Chitral and Gilgit, in Gizar and Ishkoman, I have, in my early days, performed many operations for the relief of the condition—conscious even then of the temporary nature of the relief I was affording the sufferer. Stone is not related in any conspicuous way to the physical features of the country.

CLIMATIC INFLUENCES

It is most frequent in the hot, arid, desert plains, where vegetation is relatively scanty; where grazing for cattle is poor, and scorched by the intense heat, or parched because of scanty rainfall. But its incidence is not always greater in these localities than in others more favourably situated. Thus it occurs with great intensity in the cultivated lands, watered by the five rivers of the Punjab or by the numerous Himalayan streams that go to swell the waters of the Ganges. Nor does rainfall appear to be a factor of importance: in Dera Ismail Khan (N.W.F.P.)—that furnace of the plains—where the rainfall is rarely

*The second of two lectures on experimental research at the Pasteur Institute, Coonoor, S. India, delivered before the Royal College of Surgeons of England.

more than 5 inches throughout the year, the incidence of stone is 62 per 100,000 of the population, as compared with 84 in Manipur (Assam), where the rainfall is 100 inches, or thereabouts, and vegetation plentiful. One thing the western and eastern areas of the great stone-belt have to some extent in common: a great disparity between summer and winter, and between day and night, temperatures. But here again too much importance can be attached to this fact. It has been suggested that, because of the known effect of hypervitaminosis-D in causing stone in rats, the constant exposure of a large part of the body to the rays of the tropical sun may induce in natives of India a condition of hypervitaminosis-D, conducive to stone formation. Experiments on albino rats have not, in my hands, lent support to this view. Further, the exposure is greater in the loin-clad southerner than in the more completely clad northerner.

RACIAL INFLUENCES

It is stated in certain monographs on "stone" that Mohammedans in India are more subject to it than Hindus; and it has been suggested that this is due to the Mussulman's habit of micturating in the squatting position, which renders complete evacuation of the bladder impossible. I have no data regarding the frequency of this habit in the two communities, though it would seem to be practised by both; but whether it be true or not that the Mussulman is more addicted to it than the Hindu, my data provide no evidence that stone is more common in the one community than in the other. In my series there are 1,024 cases in which particulars are given as to the community of the sufferer: of these, 757, or 73.9 per cent., were Hindus; 235, or 22.9 per cent., were Mohammedans; and 32, or 3.1 per cent., were in other communities.

Hindus form, approximately, 69.5 per cent. of India's 320 million people; Mohammedans 21.3 per cent., and other communities 9.2 per cent.—percentages which, so far as the two main communities are concerned, are practically identical with the percentage distribution of stone. Mohammedans are therefore no more subject to the malady than Hindus. If anything, other communities are more afflicted by it than either. The disease appears to be comparatively rare among Europeans in India; in my series they formed 0.44 per cent. of the whole.

NUTRITIONAL INFLUENCES

It is in the plains of the Indus, and in the sub-Himalayan regions fed by the upper reaches of the Ganges and its tributaries, that wheat is most grown. Here, too, the cultivation of maize is considerable; while in Sind the chief crop is millet. As we pass eastward along the Gangetic plain the cultivation of rice increases, reaching its acme in the Delta; southward, also, through Lower Bombay to Malabar and Madras, and south-eastward to the deltas of the Godaveri and Kistna Rivers, the cultivation of rice increases. In Burma, too, rice is the principal, and often the only, cereal produced. In these places rice is the staple article of diet. The suspicion thus arose in my mind that the gradual decline in the incidence of stone, from regions where wheat is the principal cereal grown to those where rice is the chief crop, might be associated in some way with the cereal forming the staple article of diet of the people. Experiments on animals showed that this was so. Groups of young albino rats were fed on a diet of the same composition but in which the cereal, forming 90 per cent. of the diet, differed. It was found that cereal foods ranged themselves in the following descending order of stone-producing potency: whole-wheat flour, oatmeal, North Indian millet (*bajra*), white flour, rice, and South Indian millet (*cambu*). The result of this experiment provided a partial explanation of the peculiar distribution of stone: its great frequency in the wheat-growing areas of the north-west, and its relative infrequency in the rice-growing areas of the south and east. But this association is not invariable. Thus, stone is as common, even commoner, among the rice-eating Manipuris (Assam) as in the wheat-eaters of Dera Ismail Khan (N.W.F.P.). There is more in the occurrence of stone than the cereal which happens to be the staple food in this or that part of India: other dietetic factors are concerned. What these factors are has been revealed, in some part at least, by experiment on animals.

EXPERIMENTAL PRODUCTION OF STONE

Well-fed albino rats do not suffer, certainly not in Coonoor, from stone; and these animals are very suitable for experimental work on this disease. I have used them throughout my own work. My first experiment was begun early in 1926. It lasted 157 days. Such experiments are tedious; the more so when one's object is to ascertain the faults in Indian dietaries to which "stone" might be attributable. The diet used consisted of oatmeal 53 parts, linseed meal 20 parts, cornflour 25 parts, calcium phosphate 1 part, sodium chloride 1 part, and distilled water *ad libitum*. It may be wondered why I used oatmeal, since it does not enter to any considerable extent into the dietaries of the Indian people. I confess at once that chance determined my use of it—a lucky circumstance such as occasionally comes the way of the investigator, and for which he must ever be on the watch. The original object of the experiment was not to produce stone but to learn the effect on the thyroid gland of an iodine-poor diet such as this one was. But as things turned out the experiment taught me three things: (1) that the so-called iodine-poor diet did not cause thyroid enlargement; (2) that it did cause stone and its sequelae; and (3) that it also caused a very grave form of anaemia, which subsequent investigation in my laboratory by Dr. Lucy Wills showed to be due to *Bartonella muris* carried by the lice with which my rats were infested.

Here I may pause to draw attention to this last, and very instructive, result: an anaemia which is brought about in practically cent. per cent. of rats by removal of the spleen is also brought about by a faulty food deficient in certain vitamins. The intact spleen protects against this anaemia; and the conclusion is irresistible that the faulty food, by its action on the pulp cells of this organ, reduces its protective action against *Bartonella muris*. This is a very noteworthy instance of the effect of faulty nutrition in breaking down the defences of the body against infection.

But to return to stone. The above diet caused the disease in 21 out of 120 animals, an incidence of 17.5 per cent. In my next experiment one group of young rats was fed on the same diet as the above, and another on a diet wherein the oatmeal was replaced by whole-wheat flour. This experiment also lasted for many days, and when at length it was completed it revealed a significant difference in the incidence of stone in the two groups: of the 50 rats fed on the "oatmeal diet" 4, or 8 per cent., had stone and its sequelae; of the 50 fed on the "whole-wheat diet" 11, or 22 per cent., had stone and its sequelae. Whole-wheat flour was thus shown to be more potent to cause calculus than oatmeal. The next problem which naturally occurred to me was whether the other ingredients of the diet were also factors of importance: these ingredients were cornflour and linseed meal. A further tedious series of experiments was undertaken from which the knowledge emerged that neither of these food materials contained any positive or toxic agent which was concerned in stone production. It further emerged that diets composed exclusively of white flour or of white bread, either

with or without added yeast or marmite, were also capable of causing stone, though the stone-producing potency of white flour was markedly less than that of whole-wheat flour; vitamin B deficiency was not concerned in causing stone. Subsequent experiments excluded another factor—deficiency of suitable protein.

Cereal foods thus appeared to vary in their stone-producing potency, and the experiment, mention of which I have made already, was undertaken to determine their relative degrees of potency. This experiment fixed them in the following descending order: whole-wheat flour, millet grown in the north of India, white flour, rice, and millet grown in the south of India. The last did not cause "stone" at all within the 515 days of the experiment. The significance of this observation in regard to the distribution of stone in India has already been referred to. Here another possibility arises: millet grown in one part of India may be stone-producing, while that grown in another may not: soil, manure, and irrigation conditions—which I had already shown to be capable of causing variations in the nutritive quality of food grains (McCarrison, 1926–28)—may thus be concerned in the production of stone. I have not so far been able to investigate this aspect of the matter.

The next step in my investigations was to see whether, by further additions to the stone-producing diet, the malady could be prevented. One group of rats was therefore fed on a diet of known stone-producing potency; another on the same diet to which whole milk was added, the milk being given in the proportion of two-thirds of an ounce per rat per day. Stone and its sequelae—cystitis, hydronephrosis, and pyonephrosis—were completely prevented by this measure. Clearly, therefore, milk contained "something" which counteracted the stone-producing action of the diet. Further experiments of a like kind followed, but in these the substance added was butter or cod-liver oil, the action of which was compared with that of vegetable oils in common use in India. The butter prevented stone, so also did cod-liver oil; the vegetable oils did not. This narrowed the issue down to deficiency of vitamin A bearing ingredients as a chief food fault concerned in stone production.

By this time I had become acquainted with the original observations of Osborne and Mendel (1917), associating urinary calculus with deficiency of vitamin A in rats fed on synthetic diets, and with the latter work of Fujimaki (1926), definitely demonstrating the specificity of vitamin A deficiency in this regard. With this help my work proceeded more rapidly, but along the lines previously followed: the production of stone by means of foods in common use by the people of India.

It was stated in some of the reports which I received from civil surgeons, as well as in textbooks on the subject, that hard waters have something to do with the causation of stone. Accordingly, lime was added to diets deficient, among other things, in vitamin A, with the result that the incidence of calculus, of cystitis, of hydronephrosis, and of pyonephrosis was greatly increased; and it was found that calcium-phosphorus imbalance was a further, and very important, factor concerned in the causation of certain types of urinary calculi.

The types of stones produced in these experiments were four: ammonium-magnesium-phosphate, calcium carbonate, calcium hydroxide, and stones composed of a mixture of calcium carbonate and calcium hydroxide.

My immediate object had thus been attained. It had been shown that certain food materials in common use by the people of India were capable of causing stone in rats when used in quantities disproportionate to certain other food materials that are antagonistic to stone formation.

INDIAN DIETARIES AND STONE

In India stone is a poor man's disease. Throughout the peninsula the staple article of diet of the people is one cereal grain or another. We have seen that these cereals vary in their stone-producing potency, and it may be assumed that all cereals contain, in some degree of concentration, a *positive agent* or agents favourable to stone formation. This assumption is justified by the observation that the stone-producing potency of whole-wheat flour is greater than that of white flour—something favourable to stone production is in part removed from the whole wheat in the process of manufacturing white flour; this "something" can scarcely be vitamin A, while we know it is not any of the other vitamins. (Here it may be suggested that the lesser potency of white flour as a stone-producing agent may be correlated with the gradual diminution of vesical calculus in England during the last fifty years—a period coinciding with the introduction and almost universal use of white flour.) We have seen also that the distribution of stone in India can be correlated with the kind of cereals in use in various parts of India; and we have seen, further, that milk and butter, if used in sufficient quantity, afford complete protection against stone in rats. Now the great fault of all Indian dietaries among the poorer classes, who are the chief victims of stone, is that their diets do not contain anything like enough milk and milk products, and I postulate that according to the kind and quality of the cereal grain they use as the staple of their dietaries, and according to the poverty of these dietaries in milk and the products of milk, so they will be more or less likely to suffer from stone. Milk and the products of milk are among the greatest of India's needs at the present time. I do not contend that this is the whole story; indeed, I know it is not, but it represents certain chapters of it.

DIETETIC FACTORS CAUSING STONE

There appear, therefore, to be two categories of dietetic factors concerned in stone formation: (*a*) *positive factors*, including excess of lime in the diet, and some unknown agent present in whole cereal grains; and (*b*) *negative factors*, including deficiency of vitamin A derived from animal sources, and deficiency of phosphates relative to the amount of lime in the diet. I say "vitamin A derived from animal sources," because millions of people in India are dependent for their supply of this factor—whatever that factor implies—on vegetables; I am not yet certain that the latter source of vitamin A is, from the point of view of stone prevention, as good as the former. I do not think it is, and I notice that de Langen (1929) of the Dutch Indies is of a like opinion.

Here it is necessary to make my position clear in regard to the value of whole-wheat flour and oatmeal as articles of diet. Because I have found that whole-wheat flour and oatmeal, when they compose the major part of an imbalanced diet, are stone-producing, this is not to say that I desire to displace these two most valuable foods from the high place in the dietaries of mankind to which they have attained throughout the centuries. To do so would be to doubt the evidence of one's own eyes, and to fly in the face of reason. Who that has seen the magnificent physique of the Sikh or Pathan would dare to recommend them to change their staple diet of unleavened whole-wheat bread for the white loaf of commerce? And who that has seen the slum children at Miss Margaret McMillan's "Nursery School" at Deptford can doubt that she was right to exercise the care she did in the selection of the oatmeal on which experience had taught her to rely as a constituent of her children's dietaries—children who rarely need the dentist? The truth is that

no single food material is in itself a "complete food"—even milk is not; if it be not faulty in one regard it is faulty in another. The best are those whose faults are least; and in the latter category both whole-wheat flour and oatmeal are to be included. Milk, as an exclusive food, will cause anaemia in rats; onions, anaemia in dogs; cabbage, goitre in rabbits; and oatmeal or atta will cause stone in rats; yet what better food can there be for mankind than a judicious mixture of all four? Animal experimentation has its uses—its great uses—but like every other instrument employed by man the results of its use must be judged by reason and experience.

STONE: A DISEASE OF FAULTY NUTRITION

During the course of my experimental work I have produced stone in 250 animals. The young rats that I

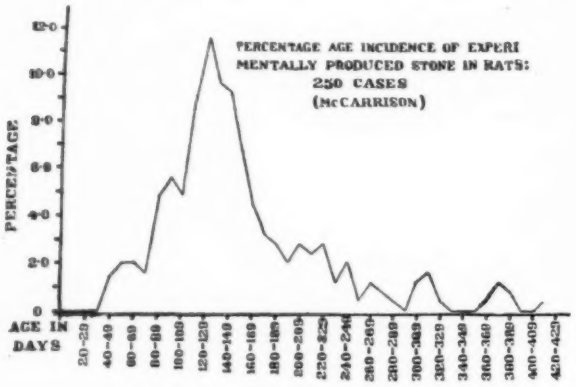


FIG. 2.

have used have always been about a month old at the outset of the experiments: that is to say, of an age at which they are able to fend for themselves, and are no longer dependent on maternal nutriment. They would correspond approximately to children of a year or two old. I have grouped these cases together in the chart which I now show you (Fig. 2). You will observe that in rats "stone" is a disease of early life; that the pinnacle of age incidence is reached when they are about 120 days old, when they have been living on the stone-producing diets for about 90 days. Thereafter the curve of age

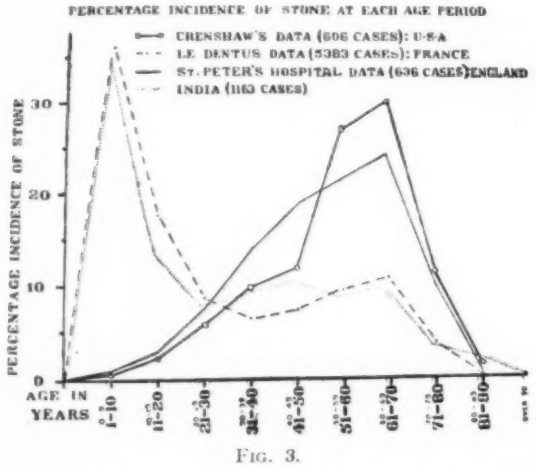

PERCENTAGE INCIDENCE OF STONE AT EACH AGE PERIOD
CRENSHAW'S DATA (606 CASES): U.S.A.
LE DENTUS DATA (5383 CASES): FRANCE
ST. PETER'S HOSPITAL DATA (636 CASES): ENGLAND
INDIA (1163 CASES)
PERCENTAGE INCIDENCE OF STONE
AGE IN YEARS

FIG. 3.

incidence declines rapidly and gradually fades away until, at the age of 400 days or over, stone is relatively rare. Now compare this curve, first with that of the age distribution of stone in India (Fig. 3). The same rapid rise will be noticed during its earlier stages, the same rapid fall and its gradual fading away thereafter; the curves in the rat and in the Indian are practically identical. Taking these facts into consideration with those I have already presented the conclusions seem to me to be irresistible that in India urinary calculus is a disease of faulty nutrition, and that the same food faults which produce the malady in rats produce it also in the people of India.

But it is not always so. In my next illustration (Fig. 3) I have set out in the same diagram the percentage incidence of stone at each age period as it is found in India, in France, in the United States of America, and in England. Here the incidence curves are of orders so different as forcibly to suggest that while the chief causes of stone in India and in France are probably the same—nutritional in the main—those in England and the United States of America are in the main different: in the one the high peak of incidence is at the earlier period of life, when nutritional disturbances are most likely to be felt; in the other it is at the other end of life. Many factors may account for stone production in later life: stone formed in early life may be endured to later life; stagnation of urine due to enlarged prostate and the like may cause it, or infection. But it is not my purpose to discuss the causation of stone in later life—a condition relatively rare in India.

SEX INCIDENCE OF STONE

In India stone is much commoner in males than in females: in my series the proportion is as 13.2 to 1. In children under the age of 15 years, 92.5 per cent. of stones occurred in males. My observations in this regard are in conformity with those of Winsbury White (1929)—

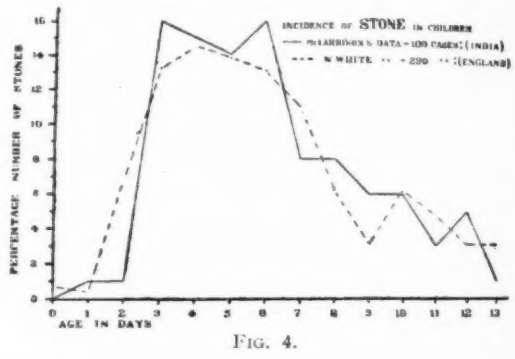


FIG. 4.

in fact his curve and my own are practically identical (Fig. 4); and if I be correct in my contention that in Indian children stone is a disease of faulty nutrition it is very likely to be so also in English children. One point of interest is brought out in this diagram (Fig. 4): the Indian curve shows that very occasionally stone may occur in breast-fed infants.

The greater incidence of stone in males does not apply to experimentally produced stone in rats. In these animals it is slightly more common in females. I have, at present, no explanation to offer of this difference in the two species.

INCIDENCE OF RENAL CALCULUS IN INDIA

In comparison with vesical calculus renal calculus is relatively rare in India (Fig. 5). In a series of 454 cases of stone recently sent to me by surgeons practising in parts of India where the disease is common, there were only 34 renal stones; a proportion of vesical to renal of 13.5 to 1. Whereas vesical calculus is pre-eminently a disease of early life, renal calculus is a disease of middle life (Fig. 5). In the course of my experimental work I have had frequent examples of renal calculus in rats. In my series of 250 experimentally produced stones there were 31 renal calculi; a proportion of vesical to renal of

8 to 1. In albino rats renal stone is equally common in the two sexes. In human beings it is much commoner in males.

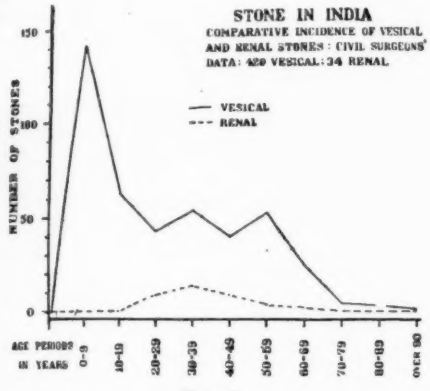


FIG. 5.

INCIDENCE OF URETERAL STONE IN INDIA

Ureteral stone is rare in India, or it is rarely operated upon. Among the 16,384 calculi removed during the years 1926–28 there were only 14 ureteral stones. A diagnosis of stone in the ureter was made in other cases, but the patients refused operation.

In my series of 250 experimentally produced stones in rats there were 21 examples of ureteral calculus: in the majority of these the stone was obviously on its way from the kidney to the bladder, and was not impacted in the ureter. Males had such ureteral stones more often than females (16 to 5).

CYSTITIS, INCRUSTED CYSTITIS, PYONEPHROSIS, ETC.

It is not possible, in the time at my disposal, to do more than mention the morbid states of the urinary tract so often associated with stone in experimental animals: cystitis, incrusted cystitis, hydronephrosis, and pyonephrosis. Any of these may occur without stone formation, though such occurrence is the exception and not the rule. We do not, as yet, know why one animal develops stone while another fed on the same diet develops incrusted cystitis or pyonephrosis without stone. Cystitis is not a necessary precursor of stone, even when the stone is of the ammonium-magnesium-phosphate variety. And cystitis without stone can be produced in rats with considerable certainty by diets deficient in vitamin A but containing an excess of animal protein—a combination of food faults not uncommon in human sufferers from cystitis. Curiously enough the cystitis so produced is commoner in female than in male rats: I believe I am right in saying that in human beings cystitis is also commoner in the female sex.

CHEMICAL COMPOSITION OF HUMAN STONES

During the past three years analyses of 226 human urinary calculi have been made in my laboratory (Newcomb and Ranganathan). The stones may be classified according to their chemical composition as follows:

	Number	Percentage of total number of stones
Pure uric acid	15	6.63
Pure oxalate	13	5.75
Pure phosphate	3	1.32
Phosphate-oxalate	23	10.17
Urate-phosphate	20	8.85
Urate-oxalate	78	34.51
Urate-oxalate-phosphate	74	32.74
Total	226	99.97

According to Kahn (quoted by Kauffmann) (1929), pure uric acid calculi are rare: they formed 6.6 per cent. of the total in our series of 226. Freyer (1908) found that most of the stones containing uric acid or urates occurred in young people. Our data do not confirm this observation. He also found that 64 per cent. of his Indian stones contained either uric acid or urates; our figure is higher: 82 per cent. He noted also that calcium oxalate calculi were commoner in adults than in children: in our series the average age of sufferers from pure oxalate stones was 29 years. Pfister has called attention to the predominance of oxalate stones in Egypt and in India; in our series of 226 there were 13 pure oxalate stones (5.75 per cent.), while 83.17 per cent. contained more or less oxalate.

Our analyses of kidney stones are relatively few, but they show that in India these stones consist mostly of calcium oxalate and not of uric acid or urates: an observation in conformity with that of Benjamin Moore (1911) and of Rosenbloom (1915); and in opposition to that of Stengel and Fox (1927). It would seem from the literature on this subject that renal calculi are generally considered to be composed of uric acid: this is not our experience in India.

Much difference of opinion exists as to the chemical composition of the nuclei of stones. It is not always easy to find the nucleus of a stone, or, when one has found it, to be sure that one is dealing only with the nucleus. One of my assistants (Mr. Ranganathan, 1930) has recently gone into the matter in some detail. He found that uric acid or urates formed the chief constituents of the nuclei, phosphates occurring only in traces; and that the composition of the nuclei did not always run parallel with that of the stones containing them, though an approximate parallelism existed in some cases.

There is a general belief that it is possible, from the physical characters of a stone, to make a good guess at its chemical composition. We do not find that this is so; such guesses are in general very inaccurate (Newcomb and Ranganathan, 1930).

So far as our analyses of human stones go it would seem that no particular kind of stone is more prevalent in one part of India than another. We have not found it possible, from the incomplete dietetic histories of sufferers, to correlate the chemical composition of calculi with that of the diets eaten by the people from whom they were removed: the great majority of their dietaries had, however, one fault in common—insufficiency of vitamin A bearing ingredients.

CHEMICAL COMPOSITIONS OF RAT STONES

As previously stated the stones produced in rats were of four varieties: ammonium-magnesium-phosphate, calcium carbonate, calcium hydroxide, and a mixture of the last two. The essential difference between them and human stones is the complete absence of uric acid or urates. Excluding traces of urates (forming less than 5 per cent. of the total ingredients) uric acid or urates occur in 82 per cent. of all human stones in India. The usual explanation given for the absence of uric acid in rat stones (as well as in those of cattle) is that these animals possess the power to oxidize approximately 80 per cent. of the circulating purines to allantoin. Allantoin is several times more soluble in water than is uric acid, and hence it never forms a constituent either of rat or of cattle stones. Human beings do not possess this power, and in them the degradation of purine bodies stops short at uric acid; and, as uric acid is very sparingly soluble in water, it is almost always found to be a constituent of urinary calculi in man (Swift Joly).

POWER OF THE URINE TO RETAIN URIC ACID IN SOLUTION

Urine varies greatly in its power to dissolve uric acid and retain it in solution. We have recently found that the urine of rats fed on purely vegetable diets retains

much more uric acid in solution than that of animals fed on diets containing large amounts of animal protein. Hindhede has, I believe, made a similar observation in man. The urine of rats fed on a diet of liver was capable of dissolving only a very little uric acid, and this was thrown out of solution after standing for twenty-four hours. The composition of the diet, by influencing the capacity of urine to hold uric acid in solution, may thus have a bearing on stone formation.

CHEMICAL COMPOSITION OF CATTLE STONES

Cattle stones, as we find them in India, are usually small, round, shot-like bodies, having, when fresh, a light or deep golden-yellow sheen. They may occur in large numbers (Fig. 6) in the same animal, and their usual location is the urethra. They are made up of thin layers, like the coats of an onion, all layers being of the

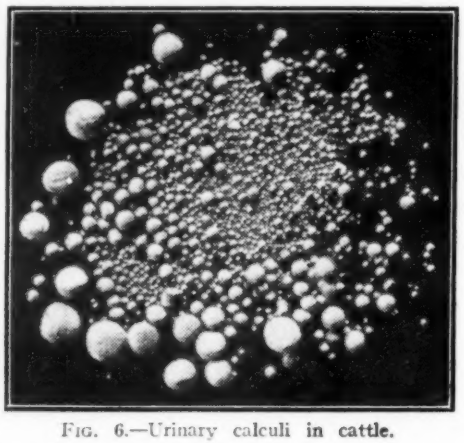


FIG. 6.—Urinary calculi in cattle.

same composition. Stones occurring in the kidney in cattle do not possess these physical characters: they are usually single, larger, of irregular shape, and are devoid of metallic sheen. But whether occurring in the kidney or in other parts of the urinary tract their chemical composition is, with rare exceptions, the same. Analyses have been made of twenty-four cattle stones in my laboratory (Ranganathan, 1931). Their composition has been found to be fairly uniform: calcium carbonate with a little magnesium, the latter presumably also existing as carbonate. In only one of the twenty-four stones was this composition departed from. In this case (a calf) the stone had a relatively high moisture content, a high nitrogen, phosphate, and magnesium content, and a low calcium content; carbonates were not present.

We have been fortunate in being able to reproduce not only the chemical but the physical (excepting the metallic sheen) characters of cattle stones under experimental conditions in albino rats (Figs. 7, 8). Briefly, this is how it was done. The rats were fed on a diet deficient in vitamin A and containing an excess of lime relative to the amount of phosphate in the diet (McCarrison, 1931). By keeping them on this diet for seventy to eighty days, and then supplying the missing vitamin A (in the form of radiostoleum) it was found that of those that survived the process a high percentage had stones of composition and physical characters closely resembling those of cattle stones. Apparently what happens is this. During the first, or vitamin-starvation, period an enormous mass (Fig. 7) of calcium carbonate debris is deposited in the urinary tract. On supplying vitamin A, but allowing the calcium-phosphate imbalance to remain, the whole (if it be small) or part (if it be large) of the calcium carbonate deposited during the first period is redissolved and dispersed. But in some cases parts remain as isolated collections or grains; and during the second period of the experiment, when vitamin A is provided, these act as foreign bodies, and a layer or layers of calcium carbonate is deposited around them. This is at present a working hypothesis; but we hope by hitting off just the right diet to keep the rats alive long enough, and by alternating the periods of vitamin-want and of vitamin-supply with sufficient nicety, while retaining the calcium-phosphate

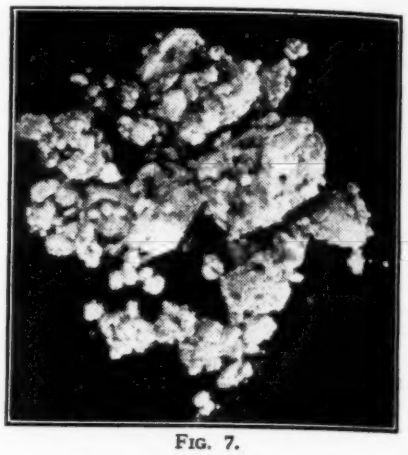


FIG. 7.

FIG. 8.

FIGS. 7 AND 8.—*Above*: Calcium carbonate concretions weighing 1,530 mg. removed from the kidneys of rat. *Below*: Calcium carbonate stones weighing 715 grams removed from the bladder of rat fed on a diet deficient in vitamin A and phosphate and containing an excess of lime. Compare the latter with the stones removed from the urinary tract of a bullock (Fig. 6).

imbalance, to reproduce these cattle stones with still greater exactitude.

In chemical composition the stones experimentally produced in rats were identical with the calcium carbonate stones found in Indian cattle (McCarrison, 1931).

Through the kindness of Mr. Hilson, Director of Agriculture, Madras, I have been able to secure reliable information regarding the food of the cattle in parts of the Madras Presidency where cattle stone is prevalent. They are fed on maize, millet, or rice straw, the husks of ground-nuts, and the empty pods of legumes. All these fodders are poor in phosphates and disproportionately rich in lime: ground-nut husks, for instance, contain as much as 3.78 per cent. of CaO and only 0.36 per cent. of P_2O_5. After the rains, the cattle obtain much more green fodder, and with it a much-needed supply of vitamin A. Periods of vitamin-want alternate with periods of vitamin-supply, the diet remaining all the while imbalanced with respect to calcium and phosphates. It is notable that the only exception to the rule that cattle stones are composed of calcium carbonate was in a calf, aged six months, which, after weaning, was fed on a diet in which calcium-phosphate imbalance was not marked. Strong support is thus lent to the hypothesis above mentioned as to the manner of calcium carbonate stone formation. Our investigations have shown, further, that in the formation

of these stones the calcium-phosphate imbalance is even more important than the vitamin A deficiency (Ranganathan, 1931). We find that the incidence of such stones can be very greatly reduced in rats by adding to the vitamin-A-poor and lime-rich diet an amount of sodium phosphate sufficient to form, with the excess of lime, insoluble calcium phosphate in the bowel. The further addition of vitamin A completely prevents the disease. I may therefore claim with some reason that the problem of "cattle stone" in India has been solved so far as the laboratory can solve it.

FUNCTION OF VITAMIN A IN THE PREVENTION OF STONE

In my last lecture I referred at some length to the effects of vitamin A deficient diets on epithelial structures throughout the body. No tissue suffers more severely from want of this vitamin than that of the urinary tract. It seems to me very probable that desquamated, keratinized epithelium from this tract may form the nidus round which calculus deposition occurs. It is true that in rats infection, as a rule, rapidly supervenes; and this, no doubt, may be in part responsible for the chemical composition of one variety of rat stone—the ammonium-magnesium-phosphate variety. But although naked-eye evidence of infection is the rule, exceptions occur in which this variety of stone is found without any obvious cystitis. Further, cystitis is no less common in rats suffering from calcium carbonate stones, and in these ammonium-magnesium-phosphate is conspicuous by its absence.

In my experiments I have found that the volume of urine excreted depends to a great extent on the presence or absence of vitamin A bearing ingredients in the diet; when absent or small in amount the volume of urine is low; when present in sufficient quantity it is normal or high. Sodium phosphate has also a very marked effect in this regard, greatly increasing the urinary excretion. It is significant that associated with the addition of vitamin A bearing substances (whole milk, cod-liver oil, or radiostoleum) to stone-producing diets, and of these substances and sodium phosphates to such diets containing an excess of lime, the urinary excretion from being scanty becomes copious, and at the same time stone is prevented.

There is, of course, another direction in which vitamin A acts in the prevention, and its deficiency in the causation, of stone. I refer to its power to prevent infection of the urinary tract, and to the influence of its deficiency in favouring such infection. This brings me to the last of the influences which may determine the occurrence and distribution of stone in India—infection.

INFECTIOUS INFLUENCES

The work of Rosenow and his colleagues of the Mayo Foundation is no doubt familiar: his experimental production of gall-stones in animals by infection with streptococci from cases of cholecystitis in man; and, more recently, his production of urinary calculi by the devitalization and infection of teeth in dogs with streptococci from cases of nephrolithiasis. Rosenow's procedure is, first, to produce "septic foci," using, for the disease he wants to produce, streptococci obtained from a case of the particular disease in man. He finds the coccus to be specific: that from cholecystitis will produce gall-stones; that from nephrolithiasis, urinary calculus. This sequence of events is probably the same in essentials as that occurring in rats: in these, foci of devitalization are produced in the urinary tract by the defective diet, and, in some forms of stone at least, chance infection may do the rest. But the point of special interest to India in Rosenow's work is that a specific kind of infection may, as he and Meisser suggest, be associated with stone, and thus account for the prevalence of the disease in certain localities. Personally, I am quite prepared to believe that this may, to a limited extent, be so; for although I have shown that the distribution of stone in India may, in some part, be accounted for by the kind of cereal used by people whose diets contain an insufficiency of vitamin A bearing ingredients, this is not the whole story, nor does it explain the occurrence of stone in all localities in India or in all individuals. Bilharzia, though a frequent cause of stone in Egypt, does not appear to be so in India; and in infection by bilharzia malnutrition is a potent favouring influence.

MECHANISM OF STONE PRODUCTION

This lecture has dealt with the causation of stone, not with the mechanism of calculus deposition. My researches have been mainly of the practical kind: my business being to tell the people of India how they can themselves avoid stone and prevent it in their cattle. It matters little to them, though it is of great interest to the medical scientist, whether the deposition of stone can be most satisfactorily accounted for by faulty metabolism due to dietetic causes, by infection, or by physico-chemical disturbances in the urinary tract. I have little doubt that both faulty food and infection may induce the physico-chemical disturbances responsible for stone deposition; but I know that a properly constituted diet will go a long way to prevent both infection and physico-chemical disturbances. It seems to me that all three agents—dietetic, infectious, and physico-chemical—play their part in the genesis of stone, and in designing its architecture; on occasion, and in certain individuals or in certain places, the star part may be taken by one or by the other. In India the star part is taken by diet.

The President and Council of the College have signally honoured me by their invitation to tell something of my research activities in India, and I have been deeply conscious of the responsibility this honour has imposed upon me. I have purposely chosen to refer only to those of my activities which I have thought might be of special interest to surgeons. Even with this limitation much has had to be omitted or passed by with but a few words. But if what I have said may serve to indicate directions in which the newer knowledge of nutrition touches upon the Art of Surgery—to indicate lines of investigation which hold out the prospect of the solution of certain surgical problems—then I shall have fulfilled, in some small measure, the duty imposed upon me by the invitation to address this great College.

A CASE OF TABOPARESIS TREATED BY HYPERPYREXIA INDUCED BY HOT BATHS

BY

C. R. GIBSON, M:B., CH.B.GLAS.

AND

R. G. GORDON, M.D.ED., D.SC., F.R.C.P.ED.

The treatment of general paralysis by hyperpyrexia has now become recognized as the most beneficial form of therapy for this disease which is known to us. Of the methods of inducing hyperpyrexia, the introduction of malaria parasites into the patient's blood has so far been found the most reliable and the most effective. This is no new observation, for Sir J. Purves-Stewart quotes a dissertation by Foster, written so long ago as 1848, on the beneficial effects of malaria on insanity.[1] The first systematic use of this treatment in general

paralysis was introduced by Wagner-Jauregg in Vienna in the year 1917.[2] Since then the method has been used with considerable success all over the world. In spite of this success the effects of malaria are less reliable than might be desired. Some patients do not contract the malaria at all, in spite of transmission of plasmodia to their blood, while in other cases the malarial infection fails to persist sufficiently to give the twelve attacks of fever which are regarded as the desirable course of treatment. On the other hand, troublesome relapses of the malaria are found to occur, and a certain number of fatal results from cardiac failure have been recorded. Other chemical (for example, sodium nucleinate) or toxic (for example, tuberculin) methods of producing hyperpyrexia have not proved any more reliable, and have hardly stood the test of time.

General Principles

While on a visit to San Francisco one of us had the good fortune to see the work of Drs. H. G. Mehrtens and P. S. Pouppirt on the treatment of various nervous affections by hot baths. This work has since been published,[3] but hardly does justice to what seemed remarkably striking results in the cases of general paralysis treated. A certain amount of doubt still seems to persist as to whether the results of malarial treatment are due to some specific effect of the plasmodium or its toxins on the progress of general paralysis, or simply to the hyperpyrexia induced. If it can be shown that treatment by hot baths is successful, then this would seem to afford definite proof that the hyperpyrexia is the beneficial agency. Further, there can be no doubt that this purely physical measure, if successful, has undoubted advantages over any other pyretic form of treatment. It does not involve the introduction of foreign toxins; the pyrexia can be accurately and exactly controlled, both as to extent and as to duration; and, provided that certain technical details are observed, the treatment is simple, easily applied, and safe.

The chief danger of this treatment is not so much hyperpyrexia as dehydration; for, as will be seen from the details of this case (confirmed by experiments on normal subjects under the same conditions), there is a very considerable loss of weight during the bath, due to secretion of sweat, which is quickly made up after the bath. This was born out by certain observations of Mehrtens. He found that this hyperpyrexial treatment relieved the gastric crises of tabes, though it did nothing to cure the tabes—a fact which we have confirmed in one case treated by this method. When the vomiting from the crises has been prolonged and severe, the patient is already severely dehydrated, and unless he is given plenty of fluid (preferably by rectum) before he is put into the bath he is apt to undergo the most alarming collapse. In all cases treated by this method, therefore, it is wise to provide means whereby fluid can be at once introduced into the system either by the rectum or subcutaneously. Care should be taken at the commencement of the treatment to determine the reaction of the individual patient to the hot bath, as it sometimes happens that his temperature may continue to rise one to one and a half degrees after he has left the bath; and if his temperature is already 106° F., as frequently happens, this may be undesirable.

We made use of a large reclining bath as described below, and the patient's temperature was recorded by a special self-recording electric thermometer prepared for us by the Cambridge Scientific Instrument Company. This instrument is of great delicacy and accuracy, and enabled us to know exactly what was happening in an initial experiment, and to give a graphic record of the pyrexia induced. We do not consider that such an instrument is essential for carrying out the treatment, so long as care is taken to establish the patient's reactions, since it is expensive and has the disadvantage that short-circuiting is very apt to occur in the lead between the rectal thermometer and the recording apparatus.

Case History

History of Present Illness.—Male, aged 35. In September, 1927, there was "apparent blood poisoning, believed to be due to eating pork. After attending various doctors, who said that he was suffering from digestive trouble and nervous dyspepsia, he showed no sign of improvement. Gradually fits of shaking commenced, which he could not control, and he had a feeling of numbness in his left leg." In 1928 the patient became irritable and depressed, and felt "as if his nerves were in great torment." He became impulsive and seemed to be losing his self-control. Then his memory began to fail. He forgot almost everything he was told and could not remember where he had put things. His work "seemed to be sapping every bit of his mind and strength." Sometimes he would be holding a cup or a glass and would seem to forget that he was doing so until he dropped it, and then the smashing of the glass would pull him together. This happened frequently. Since 1928 he has occasionally had "slight rheumatic pains and numbness in his knees and legs"; but he will not admit to any shooting or stabbing pains. About this time co-ordination became noticeably affected. He began to have difficulty in walking steadily. The numbness of the left leg increased, and his wife noticed that "he was throwing his legs out in a peculiar way when walking." On several occasions "his legs seemed to give out and throw him down on the ground." These tumbling-down episodes became more frequent, being especially marked in the dark or when he tried to turn quickly. In June, 1929, he had an attack of influenza. After this his general shakiness was greatly increased. His speech now showed a marked defect, and was hesitating. He would begin talking at his ordinary speed, then suddenly stop as if he could not get the use of his tongue, and then start off again very rapidly. When reading aloud to his wife he would mix up his sentences and run his words into one another so badly that she could not understand what he said. He began to be morose and unsociable, and shunned the company of other people.

In November, 1929, the patient removed to a house with a back entrance, as he had found that the neighbours in his old district were remarking on his speech and gait. His condition gradually became worse. He had to give up playing cards, one of his favourite recreations, as he could not remember which cards had been played. He became more and more irritable, and this mood alternated with fits of profound depression. He found increasing difficulty with his work in the designing department of a tweed factory; and when he came home at night he would spend the whole evening sitting by the fire without speaking to anyone. He became suspicious of his wife and easily upset by his only child (a girl aged 4 years). Formerly, he was passionately attached to this child, but now he began to be annoyed with everything she said or did. On one occasion he knocked her down a flight of three steps. One day towards the end of December, 1929, the patient's wife was calling on a neighbour and left the child in her husband's care. He became annoyed with something, left the child alone in a room with a fire, and went away, after locking all the doors in the house. When his wife returned she found the child screaming with fear, as she had never been left alone before. Two hours later the patient returned, having suddenly realized that the child was in danger from the fire. When he got into the house he collapsed completely, and for two days was continually shaking and weeping. In January and February, 1930, there was a continued deterioration in the patient's condition. When he spent money he could not remember what he had spent it on. He was becoming markedly emotional. In walking at night he had to be supported by his wife and fell down frequently. He complained continually about his food, and his wife found that "he could digest

only invalid's diet." He was sleeping very badly. Incoordination was affecting him generally, and in kissing his child he would kiss her chest or her shoulder in an attempt to reach her face. Much against his inclination, the patient's wife persuaded him to see another doctor, and he was brought to see us on March 10th, 1930.

History of Past Illnesses.—Apart from the common maladies of childhood, and from several attacks of influenza, the patient did not admit to any previous illness. He would make no admission to syphilitic infection. He said that he was gassed in France in 1916, and at that time had a skin rash, which was treated by inunction with a blue ointment. Pressed further for an admission of the date of a primary syphilitic infection, he still strongly denied it. But when we offered him a loophole he accepted it readily, and said, "Of course I might easily have got it through using other men's towels."

Examination.—On March 10th, 1930, the main feature was a marked general coarse tremor of arms, hands, head, etc. He seemed to be alert, but in answer to questions betrayed marked lack of confidence in himself. He tended to be voluble, and it was difficult to keep his attention fixed on any one subject. His memory for dates and events, even of recent occurrence, was definitely poor. He had a greatly exaggerated opinion of his own importance and of the value he was to his employers; but he had none of the exaltation and delusions of the fully developed general paralytic. Speech was grossly hesitant, and he had a marked stammer. The slurring and clipping of syllables and fusing of words made it difficult to follow much of his conversation. Writing was jerky and of poor quality. The letters were pointed, unevenly spaced, and irregularly formed. There was a coarse tremor of the hands and arms; but, by concentrating his attention on this, the patient was able to control it to a great extent. It was most marked on movement. Tremor of the lips was pronounced, particularly when he was speaking, and there was constant tremor of the tongue. His gait was very unsteady. The feet were thrown out and brought down hard, and he walked on a broad base. Romberg's sign was present, and when turning sharply the patient had to be firmly supported to prevent a fall. The arm movements were unsteady, and the finger-nose test was poorly performed. Sense of position was also impaired. With the legs crossed the patient could not tell which leg, or which part of the leg, was touched, though he could feel the actual touch perfectly well. There did not appear to be any actual loss of power either in arms or in legs. There were no areas of hyperaesthesia. Sensibility to touch, pain, and temperature was unimpaired. Sensibility to vibration was below normal limits, though not entirely absent. The patient has had a slight strabismus for many years. There was neither diplopia nor nystagmus. The pupils were of medium size. The left was slightly larger than the right, and was not quite regular in outline. Reaction to accommodation and light was normal, and there were no pathological changes in the optic fundi. The knee-jerks and ankle-jerks were absent, and other tendon reflexes were normal. Skin reflexes were unchanged, and the plantar responses were flexor.

A blood Wassermann reaction taken on March 25th, 1930, was strongly positive. On April 6th a lumbar puncture was performed. The cerebro-spinal fluid was under considerably increased pressure, but it was quite clear. The following report was received:

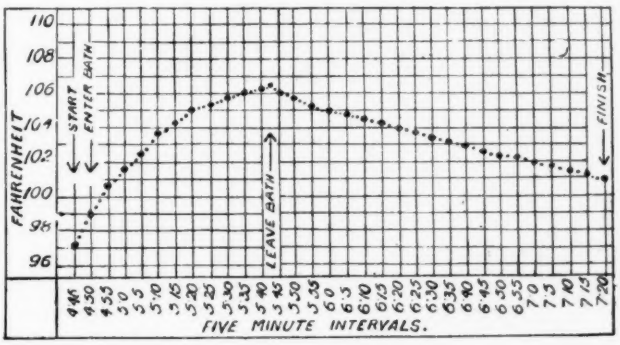
Foam test	Positive.
Globulin test	Positive.
Protein	0.10 per cent.
Cells	15 per c.mm.
Colloidal gold test...	0000114433.
Complement-fixation test... ...	Strongly positive.

It was then decided to adopt the experimental hot bath treatment in this case as the symptoms of general paralysis were not yet in an advanced stage. On April 25th, 1930, an injection of sodium nucleinate was given, and a leucocyte response was shown as follows: before injection, 6,600 per c.mm.; after injection, 9,100 per c.mm. This is a wise precaution before beginning hyperpyrexial treatment, since it demonstrates the patient's capacity for reaction.

TREATMENT

On April 29th, 1930, the following procedure was adopted. The patient was weighed (stripped), and after five minutes' rest on a couch the mouth temperature, pulse rate, and respiration rate were recorded. A sensitive recording galvanometer of the moving-coil type (thread recorder; Cambridge Scientific Instrument Company) was used to make a continuous graphic record of the rectal temperature. This apparatus was placed in the dressing-room leading off the patient's bathroom. We could thus watch for any sudden rise or fall in the patient's body temperature, and at the same time observe his general condition as he lay in the bath.

The metal thermometer, containing a delicate thermopile, was inserted into the patient's rectum while he was resting on the couch. As soon as the temperature was recording steadily he entered the bath. This was an ordinary reclining bath, and it was filled to the brim with water at a temperature varying in different experiments from 106° to 110°. A waterproof canvas cover was stretched across the bath and tightly bound down, there being a slot for the patient's neck, so that only his head was out of the water. Heat loss from evaporation was thus cut down to a minimum; and an attendant, watching a thermometer in the bath, kept the temperature even by the addition of a little hot water as required. Five minutes after the patient had entered the bath the mouth temperature, pulse rate, and respiration rate were recorded. These readings were repeated five minutes before the patient left the water. The duration of each treatment varied from forty to fifty-three minutes, the majority being about fifty-two or fifty-three minutes. The patient was then wrapped in blankets and made to rest on a couch for one and a half to two hours. The mouth temperature, pulse rate, and respiration rate were recorded twenty minutes after he left the bath; and the rectal temperature was recorded until the patient was ready to dress. He was then weighed again and the loss of weight noted. A specimen record shows a typical reaction.



During the several series of treatments, various forms of trouble were experienced with the delicate recording galvanometer, and a number of the baths were given without the use of this apparatus. On these occasions the mouth temperature, pulse rate, and respiration rate were recorded every ten minutes. In the earlier experiments we started with a high temperature (110° to 108°) and gradually lowered it when the patient showed signs of distress. But later we found that it was more satisfactory to start with a temperature of 106° to 107°, and to retain that level throughout the experiment. By this method we were able to reach and maintain a body temperature equivalent to that of the bath, thus producing a more sustained hyperpyrexia. Pulse rate usually reached a level of 120 to 140, respirations 50 to 65, and body temperature 105° to 107° (frequently 106°).

The patient invariably manifested some degree of distress during the last fifteen to twenty minutes of each session. Breathing became very rapid and shallow, and occasionally there was marked cyanosis. He sometimes complained of singing noises in his ears, of fullness in his head, and frequently of headache. On three occasions he became light-headed, but only twice was it considered necessary to finish the treatment before the expiry of fifty minutes. We found that fifty-three minutes was as

long a period as the patient could reasonably be asked to remain in the water. On almost every occasion distress was marked not later than forty-five minutes after the commencement. The average loss of weight during each bath amounted to 4½ to 5½ lb., the minimum being 3 lb. and the maximum 6 lb. 10 oz. By the next morning this loss had sometimes been more than made up. During the nine months of treatment the patient showed a net gain of 47 oz. (9 st. 11 lb. 13 oz. to 10 st. 12 oz.), and at one time he actually reached 10 st. 7 lb. 1 oz. The treatment did not hinder him from going to his work. He left work at 4 p.m. and started his bath at 4.45 p.m. Then he left for home at 7.30 p.m. (by which time he had cooled down to 100° to 101°), had his supper, and went to bed; by next morning he was fit to resume work.

The results of this experimental treatment have been most striking. Until July there was no definite change in the patient's condition, though there did not seem to be any progression of the disease. The course of eight baths in July, however, produced a very marked improvement. This was noticed particularly by the patient's wife, who said that he was no longer depressed, and only occasionally irritable. His speech was clearer, and his gait was slightly more steady. He was eating much better, and his insomnia had gone. The blood Wassermann reaction at the end of July remained strongly positive. Baths were started again in October, and twelve were given by the middle of November. Steady progress, both mental and physical, was shown. The patient's employers remarked on the improvement in his work, and he felt that he was much less easily tired. We noticed a distinct betterment in co-ordinated movements, and he could get into and out of his bath unaided. Up till that time he had to be assisted on both sides, especially when getting out of the bath.

On November 21st a complete examination of the cerebro-spinal fluid (which was still under fairly high pressure, but not so great as in April) was again made, with the following results:

Clear, colourless, no clot	
Foam test	Positive.
Globulin test	Positive.
Protein	0.09 per cent.
Sugar	0.07 per cent.
Cells	12 per c.mm.
Colloidal gold test...	0000421100.
Complement-fixation test... ...	Strongly positive.

Towards the end of January, 1931, we decided to give the patient another series of baths. This series was more prolonged than any of the previous ones, and sixteen baths were given by February 23rd—a total of forty-one. The result of this final series was exceedingly satisfactory. The patient is now a different man, both mentally and physically. In a letter which we recently received from his wife (an intelligent woman) she says:

"At the present time he has double the energy. He rarely gets depressed, never irritable, and he is mentally much sharper. Previously he was irritable beyond all words, and if things did not go just as he wanted he was beyond endurance. He walks faster and stronger, his speech is much clearer, and his writing is greatly improved. He can now digest almost anything, and he sleeps generally from 10 p.m. till 6 or 7 a.m. without wakening."

In conversation with us, she said that all their friends were remarking on the recovery of her husband's memory. He enjoyed playing cards again, and could do so in an intelligent way. He was a different man to live with, and was like the husband of three or four years ago. In walking in the dark she gave him no assistance, but he never fell.

Our examination at the end of February showed that he was alert and much more confident in himself. He still tended to be rather voluble, though much less so than a year ago; and he could now concentrate on the point under discussion. There was a very marked improvement in his memory. Speech was definitely better. It was sometimes slightly hesitant, but the slurring had gone. Writing was more even. The tremor of hands, arms, and lips was completely absent. There was still some tremor of the tongue, though it had greatly decreased. Gait was much steadier. He continued to walk on a broad base, though he did not throw his feet out so far. Romberg's sign was indefinite. When turning sharply there was some unsteadiness, but he could turn quickly without support and did not fall. Condition of arm movements was now good, and his sense of position was more accurate. There were no definite changes in the reflexes.

On April 6th, 1931, lumbar puncture was again performed. The cerebro-spinal fluid was still under pressure. A complete examination showed:

Foam test	Positive.
Globulin test	Positive.
Protein	0.06 per cent.
Sugar	0.08 per cent.
Cells	50 per c.mm.
Gold curve...	4444332000.
Complement-fixation test... ...	Strongly positive.

We have asked the patient's wife to send us a monthly report of her husband's condition. Meanwhile all treatment has been suspended.

COMMENTARY

It is to be noted that only the last gold curve is a true paretic curve. All other symptoms are suggestive of taboparesis. It will be admitted that the symptoms of this patient have improved very materially. His reflexes and Wassermann reaction are so far unaltered. The cerebro-spinal fluid shows signs of approaching a more typical paretic type, though the protein is definitely less and there is a slight diminution in the intensity of the Wassermann reaction. It should be clearly understood that we do not wish to draw any conclusions from this one case, but he has had no antisyphilitic or other sort of treatment than the hot baths. We hope that others who have more clinical material with which to work than ourselves may be induced to try this treatment and prove or disprove its utility. If it should prove successful, we believe it has much to commend it when compared with other methods of inducing hyperpyrexia.

We are indebted to the Bath Spa Committee and to Mr. John Hatton for the facilities allowed us in the bathing establishment, and to the attendants for the assistance given us in carrying out this experiment.

REFERENCES

[1] Purves-Stewart, Sir J.: *Medical Annual*, 1928.
[2] Wagner-Jauregg: *Wien. med. Woch.*, 1921, lxxi, 1105.
[3] Mehrtens and Pouppirt: *Arch. of Neur. and Psych.*, 1929, xxii, 700.

INDICATIONS FOR THE INDUCTION OF PREMATURE LABOUR*

BY

H. J. DREW SMYTHE, M.B., M.S., F.R.C.S.

HONORARY ASSISTANT OBSTETRICIAN AND GYNAECOLOGIST, BRISTOL GENERAL HOSPITAL

Under this title I want to include the indications for the induction of therapeutic abortion as well as the induction of premature labour; for in a large number of cases we may be faced with the problem of whether to evacuate the uterus in the early stages of pregnancy or to allow it to proceed, and, later, to induce premature labour.

NEPHRITIS

The commonest case brought to us for this reason is the chronic nephritic. In these cases one has to consider three things: first, the number of pregnancies; secondly, the term of pregnancy at which signs or symptoms of

* Read before the Bath and Bristol Branch on March 25th, 1931.

the nephritis were first observed ; thirdly, the severity of the nephritis. The third, of course, is the most important, and for this the help of the physician and the laboratory is necessary ; in fact, the last word in all these cases, whether or not to empty the uterus, should rest with the physician. Clinically, I consider the most important points to observe in these cases are: the quantity of urine passed in the twenty-four hours, the amount of albumin, the blood pressure, and the presence or otherwise of symptoms of impending uraemia, such as persistent vomiting or severe headache. In pregnancy two types of cases are met with. The first is that in which the patient is known to be a nephritic, and who, with or without treatment, shows signs of severe kidney dysfunction early in pregnancy. In this type of case I would advocate early evacuation of the uterus in order to prevent further damage to the kidney, because I do not think it is fair to the mother, unless it is her wish, that pregnancy should be allowed to proceed, with the consequent risk to her life and health, and with the probability of a stillborn premature child at the end. The second is that in which there has been a previous minor lesion of the kidney, which is able to deal adequately with excretion under normal conditions, but which with the added stress of pregnancy eventually breaks down. This type of case usually shows signs of failure much later in pregnancy than the first type, and also, if recognized earlier in pregnancy, responds to treatment. Induction of premature labour rather than therapeutic abortion is indicated. In either of these two types, if it is a first pregnancy, or even a later pregnancy, which is much desired by the parents, the patient may be placed on dietetic and medicinal treatment, and termination of pregnancy postponed until near term, unless danger signals arise. But in all cases of chronic nephritis I consider that induction is indicated between the thirty-sixth and thirty-eighth weeks in order to save the kidney further damage and, in many cases, to save the life of the child. Many of these children die *in utero* towards term.

The true albuminuria of pregnancy manifests itself only during the last month or so of gestation, and is usually amenable to dietetic and medicinal treatment. Induction, however, is indicated when treatment fails to keep the amount of albumin very low or absent, or when pre-eclamptic signs appear, such as persistent frontal headache, vomiting, visual changes, or gradual diminution of the daily output of urine, while the patient is under treatment. If the patient has not been treated, then the effect of treatment on these symptoms should be observed first. A case of pregnancy albuminuria which has reached the thirty-eighth week, and which, in spite of treatment, still shows albuminuria, should be induced, especially in the presence of marked oedema. Induction is performed in all my cases by drawing off a measured quantity of liquor amnii, without an anaesthetic if necessary. From 1/2 to 1 pint is usually removed, depending on the amount of liquor present. The relief of tension by drawing off the liquor amnii seems to have a definite beneficial effect in these cases, and labour usually begins in from twelve to twenty-four hours ; occasionally it may be delayed for three days.

Pernicious Vomiting

A large majority of these cases are cases of hysterical vomiting, or of vomiting induced in order to find an excuse for the termination of an unwanted pregnancy. Many of them develop an acidosis from carbohydrate starvation, and may go on from this to definite toxaemic vomiting. The presence of acetone and diacetic acid in the urine is not an indication for inducing abortion ; it merely denotes the existence of an acidosis, which will usually clear up under hospital or nursing home treatment. The indications for clearing out the uterus in these cases are progressive loss of weight, bilious vomiting unconnected with the taking of food, scanty and albuminous urine (especially if blood is present), rises of temperature, rapid pulse, and the slightest sign of jaundice. Any one or more of these signs and symptoms may be present, making evacuation of the uterus imperative if the patient's life is to be saved. No pregnancy should be interrupted merely on the patient's statement of intractable vomiting, but only after a reasonable period of observation and treatment. Neither is pernicious vomiting in a previous pregnancy an indication that a present pregnancy should be terminated.

Pyelitis of Pregnancy

This condition usually yields readily to treatment, but severe cases are sometimes seen in which the condition does not clear up under treatment, or frequent relapses occur and the patient's general condition becomes progressively worse. In such cases induction is indicated. I have not seen a fatal case of pyelitis of pregnancy, but last year I was shown the kidneys of three patients who had died from this condition. There was in each case not only a pyelitis, but multiple small abscesses in the kidney substance, which I presume is the end-result of a *B. coli* infection.

Cardiac Disease

Patients with compensated heart disease pass through pregnancy and labour usually without ill effect ; but labour should be shortened by forceps delivery, or, better still, by an induction about the thirty-eighth week, especially if there is the slightest suspicion of disproportion. It is always of advantage in moderately severe, and necessary in severe, cases of cardiac disease, for them to rest in bed under supervision during the last month of pregnancy. In all cardiac cases the advice of a cardiologist should first be sought as to the advisability of pregnancy at all, and as to whether an accomplished pregnancy should be terminated at an early stage or allowed to go on to maturity. When compensation fails during pregnancy, then labour, whether commencing naturally or induced, is fraught with danger for the mother. Rest in bed and suitable treatment may re-establish compensation, in which case an easy labour should be ensured by induction at a period when the child is likely to survive and yet is small enough to pass through the maternal passage easily—that is, from the thirty-sixth to the thirty-eighth week.

Phthisis

Active phthisis is an indication for early evacuation of the uterus. Should pregnancy, however, have gone beyond the fourth month there is nothing to be gained by interrupting its course. During pregnancy there is usually a definite improvement in the patient's general condition, and labour proceeds normally ; but in the puerperium the disease becomes rapidly worse in a large number of cases, and I have seen two patients in whom the disease progressed so rapidly, and with such swinging temperatures, as to simulate septicaemia. In my opinion no woman suffering from active phthisis should be allowed to become pregnant, or, if already so, pregnancy should be terminated at the earliest moment. It is useless waiting to see " how she gets on."

Epilepsy

Cases arise in which the number of fits greatly increases during pregnancy ; in fact, they always tend to do so. In some cases the first manifestation of epilepsy may be the occurrence of fits during gestation. Interference with the pregnancy is not necessary unless the fits become

too frequent, or uncontrolled by drugs and endanger the patient's life. Too rapid child-bearing has a bad effect on epileptics, and I consider that the number of children should be limited, both for the sake of the mother and of posterity. I recall one case, especially, of a young woman who had frequent children and more frequent fits, and who was fast losing weight and health. She came to me for her fifth pregnancy five months pregnant and with fits so frequent that she always had to have some one with her. I terminated the pregnancy by doing a subtotal hysterectomy. Now she is healthy, well nourished, improved mentally, and her fits are few and far between.

INSANITY

With the " bad family history of insanity " we are not concerned in this paper ; but we may be asked to evacuate the uterus in these cases. Whether we do so depends on our individual outlook, as we have no legal status in this matter. Puerperal mania, or insanity of lactation, in the previous pregnancy is, in my opinion, a definite indication for the termination of pregnancy.

DISPROPORTION

This is the condition above all others in which induction of labour is indicated. By this means there has been a large saving of maternal and foetal lives, the number of operations for Caesarean section has been decreased enormously, and patients who have previously had prolonged labours, with probably difficult forceps deliveries, have by a judicious induction been given a normal labour without instruments. No definite measurements and no definite term of pregnancy can be laid down as to the exact time when induction should be performed. Each case must be frequently examined, especially from the thirty-fourth week onward, and induction performed directly it is difficult to press the head into the brim ; definite overlapping should not be waited for. Induction should not be advised unless the true conjugate is at least 3½ inches, and unless pregnancy can be allowed to proceed to the thirty-second week. If these conditions are not present, then Caesarean section should be performed in order to deliver a child that is likely to survive.

OCCIPITO-POSTERIOR POSITIONS

Induction of labour is often most successful in this condition. If cases of posterior lie with a normal-sized child and small pelvis, or a large child and a normal pelvis, are allowed to go to term there is either a prolonged labour before the head rotates forward or the occiput is unable to rotate forwards at all owing to the size of the head approximating so closely to the size of the pelvic cavity. This difficulty can be avoided in almost every case by induction of labour at the thirty-eighth week. This allows for a smaller head, which has more room in the pelvic cavity to rotate forwards, and as a result no further intervention is necessary in the majority of cases. At the same time as the induction is performed an attempt may be made to rotate the head and anterior shoulder into an anterior position, which may be maintained by pads and binder. This is by no means always successful, but in every case an attempt is worth while.

BREECH CASES

In some cases of breech presentation where external version has been unsuccessful (and these are generally found to be cases in which the legs are extended) induction at the thirty-eighth week, depending on the size of the child, in indicated. In breech cases another method of induction, other than the one described below, must be carried out. The advantage of induction in these cases is to get a smaller child and so make it more easy for a natural delivery to take place. Unfortunately even after induction it may be necessary to bring down the legs in order that the child may be delivered, but the smaller child makes this manœuvre easier.

METHOD OF INDUCTION

The method of induction which I always employ is a modification of the old method of rupture of the membranes. For this purpose I have had made a double curved silver catheter, similar to a prostatic catheter, with a blunt-ended stylet, which can be protruded at the distal end of the instrument. The vagina and cervix are cleaned up thoroughly with ether soap, and then with surgical spirit. Thorough cleansing of the vagina and cervix is essential in order to prevent any chance of introducing sepsis with the passage of the catheter. A Sims's speculum is introduced, and the cervix may be seized with vulsellum forceps, but this is not necessary unless the cervix is very posterior. No dilatation of the cervix is required. The catheter, with the point of the stylet withdrawn, is passed up the cervical canal until it meets the child's head ; the proximal end is then raised and the point of the catheter is passed behind the head, between the uterine wall and the membranes. When the point of the catheter has passed above the child's head the stylet is pushed home and the proximal end depressed ; by so doing the distal end ruptures the membranes. The eyelets of the catheter are now in the amniotic cavity, and liquor amnii commences to flow through the catheter, and is collected in a measured vessel. From half to one pint is drawn off, depending on the amount of liquor amnii present, and when sufficient has been collected the catheter is withdrawn. After the withdrawal of the catheter there is practically no further escape of liquor, so that when labour commences a definite quantity of amniotic fluid is still present.

The advantages of the method are that the opening in the membranes is made well away from the cervix, so diminishing the chances of septic infection of the liquor, that the bag of membranes is retained, and that there is no foreign body left in the uterus to invite sepsis or damage the uterine wall. The method is extremely simple and safe, both for the mother and for the child. Labour usually commences within twenty-four hours, but may be delayed for three days, or in a few cases for seven days. In spite of this delay I have not had a single case in which the liquor became infected. I can confidently recommend this method of induction of premature labour for all cases in which the foetus presents by the vertex, and I hope shortly to publish the results of its use during the past two years.

GONOCOCCAL STOMATITIS

BY

A. D. FRAZER, M.B., Ch.B.

V.D. MEDICAL OFFICER, COUNTY BOROUGH OF DUDLEY

AND

J. MENTON, L.R.C.P. AND S.I.

BACTERIOLOGIST, COUNTY OF STAFFORD

This condition is rare ; only about forty cases have been recorded since Neisser discovered the gonococcus in 1879. Our findings have an additional interest in view of the recent discussion in the *British Medical Journal* (February 14th, p. 263) on gonococcal infection of the nose.

Mouth infection in the newly born, like ophthalmia neonatorum, occurs during transit of the maternal passages (Rosinski,[1] Leyden,[2] Kast[3]). In adults infection is usually direct, but Chevelle and Georgel[4] have reported a case of metastatic involvement of the buccal cavity. Rosinski[1] gives five to twelve days as the incubation period in infants. In adults, for obvious reasons, it is more difficult to determine, and seems to vary from one day (Petrasie[5]) to seven days (Bronson[6]). The parts most often affected are the soft palate, the pillars of the fauces, the anterior part of the tongue, and the gingival margin

in the anterior part of the mouth (Mead[7]). The mucosa is bluish or rosy red, and the lesion has been described by Mead,[7] Rosinski,[1] and Bronson[6] as a sharply localized whitish or yellowish-white patch surrounded by a reddish zone. The gums are usually inflamed, swollen, and retracted. The breath is offensive, and the mouth movements are extremely painful. Healing occurs without much scarring.

HISTORY OF CASE

In the case we have to record, an unmarried man, aged 23, exposed himself to infection on March 13th, 1931. On the 15th he suffered from nausea, and repeatedly put his fingers down his throat to make himself vomit. Next day he had a discharge from the urethra and from both eyes. On the 17th his gums were swollen, and the following day he noticed a purulent discharge from the mouth. Dysuria had developed by this time, but there was no frequency of micturition. He was admitted to hospital on the 19th. The purulent discharge from the urethra contained gonococci. The usual tests revealed that the infection was limited to the anterior urethra; and the epididymes, spermatic cords, seminal vesicles, and prostate were unaffected. The eyes showed a bilateral purulent ophthalmia; the corneae were unaffected. The buccal mucosa, anterior half of the tongue, the gums, and the tonsils were coated with a greyish adherent membrane. In places the membrane had sloughed off, leaving bright red areas with numerous bleeding points. These superficial ulcers were more numerous in the neighbourhood of the molar teeth than elsewhere. The gums were swollen and retracted. Pain in the mouth was a prominent symptom. He looked seriously ill. His temperature was 101° F.

Diagnosis

On March 21st plates of Thomson's medium were conveyed in a portable incubator from Stafford to Dudley, a distance of 22 miles. The lamp of the instrument was lit before leaving Stafford, so that the medium was warm on arrival at Dudley. This is an important precaution when dealing with a delicate micro-organism like the gonococcus. Swabs were taken from the patient's mouth and were sown on six plates, which were immediately put into the incubator and sent back to Stafford by road. These details are mentioned to show that distance is no impediment with proper equipment and precautions. After forty-eight hours' incubation, four of the plates showed an abundant growth of pneumococci and staphylococci; the remaining two revealed, in the midst of a similar growth, some colonies having the usual appearances of gonococci. These were subcultured until they became habituated to artificial conditions and were then submitted to the usual biochemical tests. They gave the reactions of gonococci, producing acid in glucose, but not in maltose or saccharose. These micro-organisms isolated from the patient's throat will be for convenience designated as "the Dudley strain." They were not agglutinated by the patient's serum which was drawn off within the first week of the disease; and, using them as an antigen, the complement-fixation test on the patient's serum was negative, as it was with the stock laboratory antigen. Considering all the circumstances, these results cannot be regarded as exceptional.

A rabbit was inoculated with a Stoke strain of gonococci obtained some time ago from Dr. McElligott's clinic. The micro-organisms were first killed by formalin. The agglutination reactions of this animal's serum at different periods after inoculation are interesting:

	5th Day	7th Day	10th Day	17th Day
Stoke strain	1 : 125	1 : 500	1 : 250	1 : 50
Dudley strain ...	1 : 125	1 : 250	1 : 250	1 : 50

Adsorption tests showed that the Stoke strain removed all the agglutinins for the Dudley strain, and the Dudley strain rendered the serum negative for the Stoke strain. Both strains were negative to normal horse serum, but were agglutinated in strong dilutions by Types I and II, and by polyvalent antimeningococcal serums; but as these reactions are usual and merely proclaim the close antigenic relationship between the gonococcus and meningococcus they will not be further discussed. The rabbit's serum was submitted to complement-fixation tests. Dr. Price's technique[8] was adopted. Using the Stoke and Dudley strains as antigens, the following results were obtained at the periods stated:

	5th Day	7th Day	10th Day	17th Day
Stoke strain	—	±	+ ±	+
Dudley strain ...	± —	+	+ ±	+

Several direct films made from swabs from the mouth showed Gram-negative intracellular diplococci having the morphological characters of the gonococcus. A differential blood count showed slight eosinophilia up to 4.5 per cent.

Treatment

Treatment was started with urethral irrigations of a 1 in 8,000 solution of potassium permanganate, and an alkaline diuretic was given by the mouth. The eyes were bathed every two hours with a 1 in 5,000 solution of oxycyanide of mercury, and drops of 20 per cent. argyrol were instilled. The mouth was washed out frequently with a 1 in 5,000 solution of potassium permanganate. A detoxicated gonococcal vaccine (starting with 2,500 million organisms) was given alternately with small doses of edwenil (1/2 c.cm.) at two- to three-day intervals. Treatment was started on March 19th, and progress was as follows: March 24th, temperature normal; March 28th, no urethral discharge, and both urines in two-glass test clear; March 30th, the discharge from the eyes, which had been very slight for the last four days, now entirely ceased; April 4th, grey membrane covering mouth completely gone and normal healthy colour reinstated; no swelling of gums and no pain. The patient passed very rigorous tests for cure, and was considered free from infection six weeks after his admission to hospital.

COMMENTARY

The gonococcus must have been carried to the buccal mucosa when the patient attempted to make himself vomit by putting his fingers down his throat. This was two days after exposure to infection and one day before he noticed the urethral discharge—ample time for the gonococcus to multiply in the urethra and produce a highly infective, but not obvious, mucoid secretion. The other possibility here is a metastatic spread. The urethral discharge appeared on March 16th, the gums were swollen on March 17th, and the stomatitis was fully developed on the 18th, so that the time factor alone almost excludes this route. Added to this, the fact that the urethritis remained anterior throughout the whole course of the attack, and the lack of involvement of the prostate and seminal vesicles, allow us to exclude metastatic infection. The ease with which the gonococcus was isolated from the superficial exudate in the mouth, and the failure to find complement-fixing factors or agglutinins in the patient's serum after the stomatitis had ensued, further confirm these conclusions. The eosinophilia has no relation to the stomatitis. It is an occasional accompaniment of gonococcal infection (Buchanan,[9] DaCosta[10]).

The lesion in this case is different in some respects from any we have seen described in the literature. Instead of the sharply localized whitish patches surrounded with

a reddish zone which previous observers have noted, the whole of the mouth, tonsils, and anterior half of the tongue were covered with a grey membrane. Before treatment was commenced there were a few patches of superficial ulceration, chiefly around the molar teeth, where the membrane seemed to have been forcibly removed, possibly by the action of food or the tongue. While under treatment the membrane sloughed off in parts, showing red mucosa beneath without ulceration. The redness gradually faded until the normal colour was resumed. The rarity of this complication is striking, and is possibly due to the reaction of the saliva and the nature of the buccal mucosa. The presence of other micro-organisms, as in this instance, may allow the gonococcus to become established. Any unhealthy or septic condition of the mouth may act as a predisposing cause—gingivitis, pyorrhoea, dental ulcers, etc. Klepper[11] describes the case of an old woman who had simple ulcers of the mouth. She took care of a child with gonococcal urethritis, and herself developed a gonococcal stomatitis. In the case under discussion there were no such predisposing causes, and the patient was a healthy young adult. As a last resort, one must think of a specially virulent strain of gonococcus. That such strains occur seems quite definite clinically, although no bacteriological proof is yet forthcoming.

Concerning treatment, most writers advise the application of a solution of silver nitrate, 1/4 to 2 per cent. (Mead,[7] Vines,[12] Rosinski[1]). Petrasie[5] used an alum gargle and cured his case in a week. Janet[13] suggests a mouth-wash of potassium permanganate. As the gonococcus is easily killed by a weak solution of almost any disinfectant (its power lying in its inaccessibility), the choice of a mouth-wash seems unimportant. Potassium permanganate was used in this case, as it has the chief claim to an approach to specificity.

Although we had found by direct film numerous cells filled with Gram-negative diplococci which showed the morphological characters of gonococci, we were not prepared to make a diagnosis on these results alone, for it has been our experience that in the genito-urinary system and elsewhere Gram-negative intracellular diplococci may occasionally be found which are not gonococci. In the mouth numerous Gram-negative cocci frequently occur—for example, *M. catarrhalis*, meningococcus, parameningococcus, *M. pharyngis siccus*, the various types of *M. flavus*, and others. So that, if we had based the diagnosis on unsupported direct films, our findings would be open to serious criticism. We do not, however, wish to create the impression that the direct film is always worthless. A Medical Research Council Report[14] sums up the position thus:

"(*a*) That Gram-positive organisms when taken up and digested by leucocytes may lose their Gram-positive character.

"(*b*) That more than one observer has noted, in cases of chronic gonorrhoea in which the material is such that a satisfactory film is difficult to obtain, that organisms determined by culture to be gonococci retain the violet stain with unusual obstinacy, and appear thus to be Gram-positive.

"(*c*) That the stain as such does not distinguish between gonococci and other Gram-negative, but non-pathogenic, diplococci which may be present in both male and female genito-urinary tracts.

"The Committee are of opinion that these limitations do not seriously affect the diagnosis of the one order of cases in which, in their view, diagnosis by microscopical examination alone gives consistent results—namely, the active acute cases of the disease."

SUMMARY

This is a synopsis of the known facts on gonococcal stomatitis. An actual case is briefly described and an outline given of the measures adopted to place the diagnosis beyond reasonable doubt.

REFERENCES

[1] Rosinski: *Zeit. f. Geburtsh. und Gynäk.*, 1891, Fasc. 1 and 2.
[2] Leyden, *Zentralbl. f. Gynäk.*, 1893, 185.
[3] Kast, J.: Thesis, Bonn. 1894.
[4] Chevelle, A., and Georgel, M. G.: *Rev. prat. des maladies des organes genito-urinaires*, 1914, xi, 169.
[5] Petrasie: Quoted by Bumstead and Taylor, *Venereal Diseases*, 1879, p. 212.
[6] Bronson, F. R.: *Amer. Journ. Urol.*, 1919, xv, 59.
[7] Mead, S. V.: *Diseases of the Mouth*, p. 455.
[8] Price, I. N. Orpwood: *Journ. of Path. and Bact.*, 1930, ii, 493.
[9] Buchanan, R. J. M.: *The Blood in Health and Disease*, 1908, p. 270.
[10] DaCosta, J. C.: *Clinical Hematology*, 1905, p. 257.
[11] Klepper, C.: *Derm. Woch.*, 1925, xxxix, 1440.
[12] Vines, S.: *British Medical Journal*, 1903, i, 425.
[13] Janet, J.: *Diagnostic et Traitement de la Blennorragie*, 1929, p. 399.
[14] Medical Research Council, Special Report Series No. 19. Reports of the Special Committee upon the Standardization of Pathological Methods.

TORSION OF OVARIAN CYST WITH BRADYCARDIA

BY

R. FRANCIS MATTERS, M.D., CH.M., F.R.C.S.ED.

LECTURER IN HUMAN PHYSIOLOGY AND TUTOR IN OBSTETRICS, UNIVERSITY OF ADELAIDE

Many incidents have been recorded concerning twisted pedicles of ovarian cysts, particularly in children. A perusal of the literature, however, does not elicit any reference to slowing of pulse rate during the torsion, or at any other time. In 1893 Keen[1] recorded a case of ovarian cystoma weighing 111 lb., in a child of 15, but there appear to have been few symptoms and signs other than those due to pressure. Palmer Findley[2] records the case of a girl, also 15 years of age, who had a cyst of 32 lb. without untoward effects. Reuben[3] presents a report containing a reference to a girl, aged 14, who had an ovarian cyst with a twisted pedicle, without very unusual signs. The onset of menstruation at the age of 7 in a child with a large ovarian cyst is mentioned by Keatings.[4] Others, including Chu,[5] Nutt,[6] Pillai,[7] and Stevens[8] have placed on record their findings in cases of ovarian cysts. Nowhere, however, does slowing of the pulse rate appear to be mentioned.

THE ORIGIN OF BRADYCARDIA

Slowing of the heart has been noted in some cases of gastro-duodenal origin, and extrasystoles have been noted in connexion with digestive disorders. Cases of extrasystole in this group are usually found in young adults; they are due to afferent autonomic impulses stimulating the vagus centre. The result of this is that the vagus produces its inhibitory influence upon the cardiac rate, and the cardiac cycle may be so affected at times that the prolonged diastole is of such an interval that the intrinsic ventricular beat becomes manifest, with the production of an extrasystole. The condition is similar to the ventricular escape resulting from continuous vagal stimulation experimentally, in which the ventricle begins its own rhythm, as in cases of complete heart-block.

HISTORY OF A CASE

A girl, aged 20, came to me with a history of having had two attacks of pain on the right side. When I first saw her she was lying with her legs flexed, and was groaning with pain, which was most intense in the lower right abdomen. No actual vomiting had occurred, but she complained of nausea. The temperature was 100.4° F., the pulse rate was 52, and the respiration rate 32. The catamenia was of average type, being a twenty-six-day cycle, with a menstrual flow lasting four days.

The case was obviously an acute abdominal condition, but the slow pulse rate was most unsatisfactory as a guide. The patient looked drawn and ill. The abdominal wall was very rigid, especially in McBurney's area; therefore we first

thought of acute appendicitis. Although the patient was thin, there was no obvious alteration of the contour of the abdominal wall, but a curious thrill was obtained in the lower abdomen, so that torsion of an ovarian cyst was also considered.

Under anaesthesia, the patient was catheterized, but the cystic mass remained. Through a mid-line incision a large mulberry-like mass was encountered; it was connected with the right broad ligament by a pedicle that had rotated five times. The cyst was multilocular and anatomically a parovarian cyst. This purple mass, about the size of a coco-nut, was readily removed, but the ovary which was involved in the pedicle was saved. A very congested appendix was also removed, and the patient made a good recovery.

The pulse rate during the first twenty-four hours was about 60, and became faster and faster, so that in two days it reached 84, at which it has since remained.

COMMENTARY

The bradycardia is the feature of great interest in this case. Was it due to the appendix or the cyst, or might the two have combined to produce this unusual state? The suggestion offered is that the afferent stimuli from the twisted pedicle travelled by the autonomic fibres to the vagal centre, and also to its neighbour, the respiratory centre. The vagal response was a decrease in cardiac rate, or in this case the bundle of His might have been impaired, producing a two to one heart-block. The fact that the pulse rate gradually returned to normal indicates that the vagal inhibition was probably the cause, and the relatively large number of autonomic nerves in the area adds weight to this conception.

In conclusion, it may be pointed out that the above facts do not accord with the usual assumption that the peritoneal irritation necessarily provides all the indications of shock, including increased pulse rate, and that the increased pulse rate is a guide to the diagnosis.

REFERENCES

[1] Keen, W. W.: *Med. Review*, 1893, xxviii, 3.
[2] Palmer Findley: *Journ. Obstet. and Gynaecol. of the British Empire*, 1921, xxviii, 151.
[3] Reuben, M. S.: *Arch. Pediat.*, New York, 1926, xliii, 54.
[4] Keatings, G. F.: Ibid., 1926, xxxiii, 653.
[5] Chu, J. S.: *National Med. Journ. of China*, 1926, xii, 203.
[6] Nutt, J.: *Journ. Amer. Med. Assoc.*, 1927, lxxxviii, 1112.
[7] Pillai, M. K.: *Indian Med. Gazette*, 1927, lxii, 88.
[8] Stevens, I. H. K.: *British Medical Journal*, 1930, ii, 1083.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

TUBERCULOSIS OF THE MAMMARY GLAND

Tuberculosis of the mammary gland is a comparatively rare condition. Wakeley[1] states that only 212 cases have been recorded. He describes two forms (1) disseminated, (2) confluent, in which a single chronic abscess cavity is formed. The commonest cause of infection is via the blood stream secondary to pulmonary tuberculosis, but infection may occur as a result of direct contact following tuberculosis of rib or sternum. More rarely the source of infection is pleura or axillary lymphatic glands. The following case is of interest, as illustrating the presence of a single chronic tuberculous abscess cavity in the breast tissue, following lupus of face with tuberculous cervical and axillary glands of many years' standing.

A married woman, of coarse, swarthy type, born in 1893, was referred to me at the Tuberculosis Dispensary, Leigh, by her doctor in June, 1917. She was well nourished and had several scars (some scabbed over) on both sides of her neck and under her chin. There was slight discharge here and there, with some enlargement of the cervical and left axillary glands. Scraping was performed at the Manchester Royal Infirmary and she was discharged on July 26th, the lesions being apparently healed. In January, 1918, she had several small glands down the left side of her neck, with many scars and some scrofuloderma; she was doing her housework. After September, 1918, she ceased attendance at the dispensary until January, 1920, when painful swollen glands in the left axilla and lupus of the right cheek were noted. Her condition improved following treatment at the Manchester and Salford Skin Hospital. When she next visited the dispensary in May, 1923, there was extensive lupus of the right side of face and neck, together with a discharging sinus in the left axilla. She again attended the Skin Hospital regularly, and in September, 1926, she had extensive scars from ear to ear, with only a few active spots of lupus. She visited the Leigh Dispensary at intervals, and in January, 1931, she drew attention to her right breast, when a firm swelling was detected in the upper and outer quadrant adherent to the skin, but freely movable on the deeper structures. There were scars of old sinuses in both sides of neck and both axillae, also lupus of the right cheek. There was no evidence of pulmonary tuberculosis.

She was admitted to the Manchester Royal Infirmary, and the tumour, with overlying skin and surrounding tissue, was removed by Mr. A. H. Southam. The following particulars were kindly supplied to me by the surgical registrar (Dr. R. P. Osborne): Section of tumour at the time of the operation proved that it was an abscess. Subsequent pathological examination of the whole of this material resulted in the following report: "Section shows the structure of tuberculosis with caseation and abscess formation." The tumour was thus a tuberculous abscess.

With some intermissions, this patient was under frequent supervision at a tuberculosis dispensary for thirteen and a half years, first of all with tuberculous adenitis of neck and scrofuloderma, and subsequently with lupus of right cheek. The development of the tuberculosis of the mammary gland appears to have been a direct sequela of the foregoing conditions.

GEORGE JESSEL, M.D., D.P.H.,
Consultant Tuberculosis Officer,
Lancashire County Council.

[1] *Clinical Journal*, 1928, lvii, 224.

Reports of Societies

PHARMACOLOGY

A meeting of the Pharmacological Section of the Royal Society of Medicine was held in the Pharmacological Laboratory, Cambridge, on May 30th, with the president of the Section, Dr. P. HAMILL, in the chair.

AVERTIN AND THE LIVER

Dr. F. B. PARSONS read a communication on "The action of avertin on the liver," in which he described some preliminary experiments designed to show the effect of avertin (tribromethyl alcohol) upon the liver. For some considerable time it had been known that organic halogen compounds were prone to cause liver damage. More recently Lucas had investigated the effects of certain bromine-containing anaesthetics—namely, bromoform, ethylene bromide, ethyl bromide, and methylene bromide—upon rabbit's liver, and he had concluded that these substances were capable of producing fatty degeneration and necrosis of this organ. Dr. Parsons stated that he had repeated these experiments with avertin. A series of rabbits were given this drug, and after varying periods they were killed and the livers were examined histologically. Technical difficulties in the histology of rabbit's liver made it impossible to draw any definite conclusion, but in all the sections there was a certain amount of fatty degeneration. He proposed to repeat the experiments upon dogs.

Sir FRANCIS SHIPWAY mentioned that he had successfully administered avertin for the performance of cholecystectomy in a case of congenital cystic liver.

Sir WILLIAM WILLCOX pointed out that there were good grounds, *a priori*, for expecting that avertin would produce liver damage. In his opinion, it ought to be used only by experienced anaesthetists, and, by them, with great caution. It was not a substance which should be let loose on the medical profession. It was, for instance, unsafe to use it with morphine, and idiosyncrasy among patients might easily be met with.

Dr. J. BLOMFIELD asked for evidence that avertin was a liver poison. Sir WILLIAM WILLCOX replied that his statement had been made on general grounds. Dr. PARSONS said that the difference between clinical and laboratory experience was probably to be explained by the variations in dosage.

CEREBRAL METABOLISM

Dr. ERIC HOLMES read a paper by himself and Mr. ASHFORD dealing with the metabolism of the central nervous system. He described work which showed that the brain was dependent for its supply of carbohydrate upon sugar carried to it by the blood stream ; this carbohydrate was quickly converted to lactic acid, which was, in turn, oxidized. The store of lactic acid precursor in the brain was negligible in amount. The brain was clearly dependent for its normal functioning on its carbohydrate supply, and apparently the conversion of glucose to lactic acid was of importance, for after injections of glucose, but not lactate, animals recovered from hypoglycaemic convulsions. The carbohydrate metabolism of brain tissue differed in important respects from that of muscle, for no phosphate ester formation took place, nor was there resynthesis of carbohydrate from lactic acid. The demands of the brain for oxygen were very great. Analysis showed that nerve cells used oxygen at a far greater rate than nerve fibres, and the oxidative processes in the two tissues were profoundly different. The chemical differences between medullated and non-medullated nerve tissue were very marked.

The PRESIDENT said that the problem was one of great difficulty and complexity, but that work on these lines was a necessary preliminary to an understanding of the pharmacological problems connected with the central nervous system.

DIGITALIS IN TOXAEMIA

Dr. G. N. MYERS, in a paper on the curative action of digitalis in toxaemia, said that his experiments showed consistently that if a reliable tincture of digitalis were given to guinea-pigs, they survived subsequent injections of diphtheria toxin, even if the amount of toxin was approximately three times the minimum lethal dose. The control animals, which had the toxin without the previous digitalis, invariably died. The same effect was obtained when the toxin was injected first, provided that the injection of the digitalis was not too long delayed. It was also found that the glucosides from strophanthin (from *S. kombe*) exerted some life-saving effect, though not to the same extent as that given by digitalis ; g-strophanthin had no action of this type. Animals which received ouabain died a little sooner than those which had received the toxin alone. The effect of toxin on the animals which had received digitalis was different from that on normal animals ; the former responded by a decided leucocytosis, in the latter the leucocytosis was never a decided feature, and was generally absent. Experimental and clinical evidence showed that diphtheria toxin generally killed by causing circulatory failure associated with enormous dilatation of the splanchnic vessels, and a progressive fall in blood pressure, a condition which was not due to the depletion of the suprarenal glands. It appeared that digitalis was of benefit in these shock conditions because it was retained by the tissues of the vascular system. It seemed as though, when an animal was under digitalis, there was little or no place for absorption of toxin. Digitalis had to be administered for many days before perfect action was obtained, and this fact suggested that the drug occupied some portion of the cardio-vascular structure to which the toxin normally attached itself ; at all events, if digitalis were given first and had time to act, the toxin was without effect, but if the toxin were injected first, subsequent digitalization, if delayed, might be too late to be effective. Histological examination of hearts from these animals, stained for fat by means of osmic acid, revealed that the great majority of animals which had received digitalis showed considerably less fat in the myocardium than was seen in the controls. References were also made to special preparations of digitalis and to the effect of digitalis on other forms of toxaemia.

The PRESIDENT said that they had listened to a description of a most important piece of work. The contrast between the actions of the two strophanthins was of interest. It appeared that digitalis was more effective than strophanthus, and *that*, in turn, more effective than digitoxin. He felt that experiments should be done in which digitalis was administered by the mouth.

Professor W. E. DIXON remarked that, whatever the mode of action of digitalis in this case, it seemed to be different from that which they were accustomed to teach their students. It seemed to prevent the toxin from acting by saturating some structure in the heart cells, and so preventing the toxin from reaching them. The explanation, he felt, might be found along physical lines.

Sir WILLIAM WILLCOX asked whether any proprietary preparations of digitalis had been employed. Dr. MYERS replied that the preparation known as " diginutin " had proved quite beneficial, though less effective than the ordinary tincture.

Sir HUMPHRY ROLLESTON recalled that Dr. Jones of Jersey had long ago pointed out the beneficial effect of digitalis in alcoholic delirium. He asked whether the electrocardiograms had shown no effect at all, or whether they indicated the same action as on a normal heart. He also suggested as a possible alternative explanation to that offered by Professor Dixon, that in this case digitalis acted in a manner similar to a bacterial antitoxin. Dr. MYERS recalled the beneficial effects of digitalization in pneumonia obtained by certain American workers.

OESTRIN AND PITUITRIN

Dr. J. HELLER, in presenting a paper by himself and Dr. P. HOLTZ, said that the work had been concerned with the effect of oestrin, the anterior pituitary hormone, and potassium and calcium ions, on the response of the isolated uterus to pituitrin. He recalled the familiar self-sensitizing effect of pituitrin on the isolated uterus, and pointed out that this effect had been eliminated in the present experiments. Bourne and Burn had found that oestrin had a sensitizing effect on the uterus, and they suggested that it might be a natural sensitizing agent. The speaker and Dr. Holtz had confirmed these experiments with oestrin, but oestrin preparations contained protein ; with " progyon," a protein-free preparation, and " theelin," prepared from crystalline oestrin, they had failed to obtain the effects, even with enormous doses, and therefore did not agree with the conclusions of Bourne and Burn. They had found that preparations of anterior pituitary hormone had no direct effect, but sensitized the preparation to pituitrin. Changes of the potassium-calcium ratio of the suspension fluid sensitized the uterus to pituitrin if potassium was predominant in amount. A " Burn-Dale " solution containing 25 per cent. less potassium than normal had a marked sensitizing action. He pointed to the parallel which existed between these experiments and the altered potassium-calcium ratio in the blood and in the uterus

of pregnancy. This alteration, of course, leaves potassium predominant.

Professor DIXON recalled the experiments of Dixon and Marshall, which showed that there was an increase in the pituitary content of the cerebro-spinal fluid about the time of parturition. This had been thoroughly confirmed by clinical workers. He was chiefly interested in the present communication because it showed that oestrin had no effect on the uterus. This was in accordance with clinical experience. Oestrin would produce oestrus in a spayed animal, but that was its only known physiological action. It could be obtained from the most diverse sources, and might even be a metabolic product of relatively simple chemical structure.

ACTION OF HISTAMINE

Dr. J. C. HOYLE, in a paper on the action of histamine, pointed out that, although the action of histamine in simulating the condition of "shock" had been widely studied, no thorough investigation of its action on the pulmonary circulation had been made. In collaboration with Professor Dixon he had recently made an experimental investigation of this subject. It was found that the action of the drug varied greatly in different species, and deductions made on the basis of experiments carried out on one species were not valid for others. The initial effects in the dog after intravenous injection of histamine were due to a local action on the heart and pulmonary vessels, and occurred before the drug had acted upon the systemic circulation; they were due to cardiac acceleration and constriction of pulmonary arterioles, and did not occur if the injection was made into a systemic artery. These effects were transient, and were followed by a second phase, in which the amount of blood passing through the lungs was much diminished. The changes were described in detail, and were considered to be due to constriction of the hepatic veins, which were exceedingly sensitive to histamine in the dog. The action of histamine in the cat and rabbit was then dealt with; in the former, coronary dilatation played the dominant part; in the latter, pulmonary arteriolar constriction. The effects produced in the monkey (*Macacus*) had also been investigated, and were found to be intermediate between those in the dog and those in the cat. Coronary dilatation was probably an important factor. The monkey was abnormally sensitive to histamine compared with the dog, cat, or rabbit.

The PRESIDENT said that he had no doubt, from clinical experience, that histamine produced marked constriction of veins. Professor DIXON said that he could not believe that the distension of capillaries produced by histamine was more than a passive effect due to constriction of venules. This was the simplest view of the action of histamine, and it still remained to be disproved.

UTERINE PROLAPSE

A meeting of the Edinburgh Obstetrical Society was held on May 13th, with the president, Dr. H. S. DAVIDSON, in the chair.

A paper on uterine prolapse was read by Miss GERTRUDE HERZFELD and Miss MARGARET C. TOD dealing with an investigation into 227 cases of prolapse operated on between 1922 and 1929, and including a comparison of the pre-operative clinical features with the post-operative results. Of the 227 cases, 132 were traced for periods varying from one to seven years. The following table gives the general idea of the conditions present before operation. It will be noted that the complaint of "something coming down" was not universal, and that a woman with cystocele, rectocele, and cervix at the vaginal orifice may have little local discomfort, but may report on account of discharge or backache. Frequency of micturition was one of the most constant symptoms in all varieties of prolapse, and was present before operation in 70 per cent. of the 227 cases, while every patient with total prolapse had incontinence. Vaginal discharge was complained of in every case where a lacerated cervix was found, and 30 out of 34 such patients also suffered from backache. On the other hand, only 10 out of 39 women with complete prolapse had this symptom. Complications after operation were associated with sepsis, and consisted either of secondary haemorrhage which occasionally occurred after amputation of the cervix or, still more rarely, of sloughing of the wound.

TABLE I.—*Showing Analysis of Symptoms Complained of before Operation*

Condition found at Operation	Total Number	"Something Coming Down"	Frequency of Micturition	Precipitate Micturition and Incontinence on Straining	Vaginal Discharge	Backache	Constipation	Incontinence of Faeces	Pruritus
Cystocele only	22	16	18	10	12	1	2	0	0
Rectocele only... ...	18	2	1	0	14	16	12	5	0
Cystocele and rectocele	89	83	59	32	51	48	14	0	1
Cystocele with hypertrophy of cervix	10	9	8	2	8	4	1	0	0
Cystocele and rectocele with hypertrophy of cervix	17	17	10	6	14	13	4	0	0
Cystocele and rectocele with lacerated cervix	34	32	26	24	34	30	8	0	1
Complete prolapse ...	37	37	37	37	20	10	10	0	2
Totals	227	196	159	111	153	122	51	5	4

The operative technique evolved by Donald and Fothergill of Manchester was followed in practically all cases, and the authors considered that abdominal surgery was never required for the cure of prolapse. The results of operation are shown in Table II. Out of 132 patients

TABLE II.—*Showing Analysis of Results of Operation*

Condition found at Operation	Total Number	Cured; no Symptoms	Uterus, etc., in Good Position, but Urinary Symptoms Present	Prolapse Recurred	No Symptoms; Slight Cystocele found on Examination	Post-operative Pregnancies	
						Norm.	Inst.
Cystocele only ...	11	7	3	1	0	0	0
Rectocele only ...	6	4	2	0	0	1	2
Cystocele and rectocele	56	47	8	0	1	3	0
Cystocele with hypertrophy of cervix	7	5	2	0	0	1	1
Cystocele and rectocele with hypertrophy of cervix	13	12	1	0	0	1	0
Cystocele and rectocele with lacerated cervix	19	17	2	0	0	2	0
Complete prolapse ...	20	17	0	1	2	0	0
Totals	132	109	18	2	3	8	3

127, or 96 per cent., were completely cured, though 18 patients had slight frequency of micturition. In all these the urine was acid, and in the majority a slight *B. coli* infection was present. All symptoms disappeared on the administration of potassium citrate, but in two cases, treated early in the series, there was recurrence.

As a result of these investigations it was concluded that: (1) surgical treatment of uterine prolapse was a safe and satisfactory method of treatment; (2) abdominal surgery was never required in this condition; (3) the

operation resulted in a feeling of well-being often not experienced by the patients for many years previously; (4) pessary treatment, while palliative of symptoms, should be used only in cases where operation was out of the question, or in very young women.

PREGNANCY AND HEART DISEASE

Dr. A. RAE GILCHRIST read a paper on the relation between heart disease and pregnancy. He stated that heart disease was not a common complication of pregnancy, but that when it did occur it might well give rise to some anxiety on account of its relative infrequency in the individual practitioner's experience. That pregnancy threw an additional and progressively increasing burden on the normal heart was well known—a burden which was, as a rule, well borne, though in certain healthy women some dyspnoea on exertion and even slight oedema of the ankles was of common occurrence. Faced with pregnancy in a known cardiac patient, the practitioner's duty was to endeavour to form the most accurate prognosis. This involved the recognition of the possible dangers to the life or health of the mother during the pregnancy or labour, and also indeed in the days or months following delivery. A heart embarrassed by the strain of pregnancy or labour was productive of certain symptoms varying in the milder cases from a sense of exhaustion with slight dyspnoea, to fully developed heart failure in the most severe cases, with orthopnoea, generalized oedema, and increased venous blood pressure. Certain emergencies might arise during pregnancy or labour as a result of the sudden onset of auricular fibrillation with a high heart rate, of multiple infarctions in the lungs, of acute pulmonary oedema, or, finally, of collapse from acute cardiac dilatation. On the other hand, the prolonged additional burden of the pregnancy might make a further inroad into the cardiac reserve, with the result that after labour the response of the heart to exertion would be worse than before. Finally, were it considered desirable to empty the uterus artificially, then the obstetrician should act at the most suitable time and in the most appropriate manner, in order that the intervention in itself might be of minimal risk to a patient recognized as an impaired life.

Four years' experience of these cases at the Royal Maternity Hospital, Edinburgh, had led to the conclusion that no more accurate method of estimating the ability of these cardiac women to go successfully to term was to be obtained than by grading them according to the functional efficiency of the heart. The type of valvular disease, the etiology, and degree of cardiac hypertrophy, were in themselves of practically no help in forming a prognosis. The actual structural change in the heart mattered little. The all-important factor was the functional efficiency of the heart muscle, which could readily be assessed by observing the response of the patient to her everyday activities. In gauging the capacity of the cardiac patient to withstand the strain of pregnancy and labour, the functional classification of heart disease outlined by the New York Heart Association had proved to be of the greatest assistance. At the time of the first examination an attempt ought to be made to classify the patient according to one of the following groups. (1) Those who, though suffering from organic heart disease, were able to perform their habitual physical activities without any unusual distress, fatigue, or dyspnoea. These women were well enough for pregnancy and labour. (2) Those who could follow their usual activities, but had some slight discomfort in so doing. They had slight physical limitation, which showed itself by shortness of breath on climbing stairs, on walking uphill, or after performing household duties. Pregnancy and labour caused but little anxiety in these cases, though the timely use of forceps was indicated if the second stage was prolonged. (3) Those who had a definite limitation of physical activity, and were unable to carry out their usual duties without resting at intervals. Several halts were necessary in climbing a flight of stairs. They had given up attempting the more strenuous household work, and at night the ankles might be a little swollen. Seen before the sixth month with such symptoms, many of these women would require a Caesarean operation at or about term, depending upon the response they made to adequate medical treatment. Others developing such a grade of failure in the later months and with a satisfactory response to treatment would be able to deliver themselves spontaneously and without risk. (4) Those few whose cardiac reserve was minimal. They were unable to make any exertion without discomfort, and could at the most walk only a few yards with difficulty. They had a greater or less degree of congestive heart failure even at rest in bed. Women in this state were almost as certain to die if they went into labour spontaneously as they were if any obstetrical intervention was attempted before circulatory conditions were adequately treated. Heart failure of this extent in the first few months of pregnancy was probably unrelated to the demands of the foetus. A hysterotomy should be performed as soon as the woman was judged fit enough. In the later months this degree of heart failure could be avoided by adequate ante-natal care directed to improving circulatory efficiency. With this degree of failure, and labour imminent, energetic medical measures should at once be instituted. It was an axiom that no women should be exposed to the strain of active obstetrical intervention before every effort had been made to improve the circulation. Left alone, they might deliver themselves successfully and often prematurely; interfered with, they were almost certain to die, if not at the time of intervention then in the early days of the puerperium. Happily such cases were not very common. Of a series of 95 women who were carefully watched through pregnancy, labour, and the puerperium, 92 per cent. survived, and with more adequate supervision it ought to be possible to improve on this figure. The prospects of a woman delivering herself successfully at or about term were illustrated by the following figures: in Group 1, 84.6 per cent. accomplished this, the remainder miscarried; in Group 2, 77 per cent.; in Group 3, 55.6 per cent.; and in Group 4, 18.2 per cent. There were no Caesarean operations in Group 1; in Group 2 there were 7.7 per cent. (and these in the light of present experience had probably been unnecessary); in Group 3 there were 37.8 per cent., and in Group 4 54.6 per cent.

The question of a suitable anaesthetic sometimes arose. Dr. Gilchrist's view was that the anaesthetist was of more importance than the anaesthetic employed. Many of the cases were done under spinal anaesthesia with admirable results, but chloroform combined with oxygen seemed quite safe in skilled hands. Ether was doubly irritating to lungs a trifle congested, and gas, if productive of any cyanosis, embarrassed the heart by the ill effects of anoxaemia.

The Medical Research Council has issued as Report No. 62 of the Industrial Health Research Board, *Two Studies of Absenteeism in Coal Mines* (H.M. Stationery Office, 1s. net). The first of these is by H. M. Vernon, M.D., and T. Bedford, Ph.D., assisted by C. G. Warner, B.Sc. The second, by T. Bedford and C. G. Warner, deals with absenteeism at certain Scottish collieries, and an appendix by Professor E. P. Cathcart, F.R.S., and James Taylor, M.B., records an investigation into the possible causation of varying sickness rates in Scottish mines.

Reviews

FRACTURES

Dr. GEORGE EWART WILSON'S book on *Fractures and their Complications*[1] is the fruit of a wide experience, and is eminently practical in character. Being such, it has the defects of its quality in that it to a great extent ignores methods and theories which, although in favour with others elsewhere, are not approved by the author. Dr. Wilson relies, as a means of retention in position during union, almost entirely upon plaster-of-Paris, in the use of which he is a past-master, employing splints only in a few cases. Indeed, he goes so far as to say that for fractures of the extremities, omitting the Thomas splint, all the great variety of splints which have been used from time to time may be relegated to the scrap-heap. As for fractures of the shaft of the femur, he says that "there is one splint so much better than any other that it is the only one which it is necessary to keep in stock—namely, the Thomas splint." This he uses with weight extension and the Balkan frame. Although not in favour of plating fractures, Dr. Wilson employs ice-tongs for fractures of the femoral condyles, and sutures the patella and the olecranon process with wire or other material.

The subject of fractures has always been an important one—more so than some surgical authorities, too much occupied with other branches of surgery, have until lately realized. The vast increase in late years in the number of non-fatal accidents due to industry, and especially to transport, has tremendously enhanced the gravity of the problems involved, and many surgeons now devote their not inconsiderable ability to the study of the best means of rendering the results of treatment of fractures as nearly functionally perfect as possible. Among these means the *x* rays are of great importance. Surgeons like Dr. Wilson are no longer content to trust to *x*-ray records of the condition before and after setting of a fracture, or a mere fluoroscopic inspection. They insist on the importance of using the fluoroscope to guide their proceedings during the actual manipulations which are to result in the correct apposition of the broken bones. Dr. Wilson writes prophetically on this point:

> "The time is not far distant when it will be just as necessary to set most fractures by the aid of fluoroscopic vision as it is now considered obligatory to confirm the reduction by an *x*-ray."

But until the time when facilities for such vision are at hand in every hospital or clinic it is necessary to inculcate the best way of getting good results without it. This Dr. Wilson sets out to do, and succeeds in doing.

Among complications of fractures of the limbs ischaemic paralysis is one of the most disastrous and startling, both for the patient and for the surgeon, who may find himself adjudged liable to pay heavy damages in respect of an accident for which he is not to blame, simply because juries, and even judges, are found incompetent to estimate the value of pathological evidence. In this connexion Dr. Wilson quotes a rule which ought to be added to the collection of aphorisms in the *Illustrated Primer on Fractures* of the American Medical Association, and which applies to the danger of other conditions as well as ischaemic paralysis. Irremediable damage may be done in as short a space of time as six hours.

> "It is a safe rule that if the patient is not more comfortable after the fracture is set than before, there is something wrong, and it is the duty of the attending physician to find out what it is and to remedy it."

Differing from many previous writers Dr. Wilson holds that fracture of the neck of the femur is seldom the result of indirect violence, but that in the vast majority of cases it is caused by falling upon the trochanter. This is a question not easy of decision by statistical methods, because of absence of evidence as to whether in the process of falling the bone gave way before or after the ground was reached. Fortunately it is not of great practical importance. His prognosis in such cases seems to us more gloomy than is justified by the results of recent methods of treatment in this country. The few particular instances which we have quoted may be taken as evidence to show the general excellence of this book. It is freely illustrated by a large number of photographs, most of which are reproductions of *x*-ray plates and films. Many of these, though no doubt convincing in the originals, do not show up well in photographic blocks, necessarily reduced in size. We would suggest in a future edition the substitution of outlines for photographic reproductions, as more clearly demonstrative of the lessons which the author desires to convey. The index is inadequate. A much fuller one will be required by the student who in the future consults this book, and whom we forewarn that the absence of an entry in the present index by no means implies the absence of discussion of the subject in the text.

[1] *Fractures and their Complications.* By George Ewart Wilson, M.B., F.R.C.S., F.A.C.S. London: Baillière, Tindall and Cox. 1931. (Pp. viii + 415; 306 figures. 35s. net.)

MEDICAL PATHOLOGY

In *The Pathology of Internal Diseases*[2] Professor WILLIAM BOYD has attempted—and, we may say at once, with success—a book on applied pathology for physicians. Until now most pathological works have been "of such a form that the average physician seldom goes to them for assistance," or have been devoted to surgical pathology. This is to some extent due to the fact that whereas anatomy, pure and applied, must always be the basis of surgery, the physician has of late years turned more and more to the physiologist for assistance. That this tendency, if it involves neglect of the study of pathology, is not wholly to the good is readily seen by anyone who cares to read this book. Here the subjects are dealt with in a practical and readable manner, with a paragraph on "the relation of symptoms to lesions" at the end of each section, and the author's aim throughout appears to be the explanation of disease, its causes and symptoms, rather than the bald description of what will be found by the time the organs reach the museum. Though the work in no way pretends to deal with biochemistry or applied physiology, a sufficient discussion of these aspects will always be found where the occasion demands it.

There has evidently been some doubt in the author's mind in determining the exact scope of the work, which, although intended to be a companion to his *Surgical Pathology*, must obviously contain a certain amount of matter of use both to the surgeon and to the physician. It is stated in the preface, moreover, that the infectious fevers and conditions having no known morbid anatomical basis have been omitted, but we should have expected to find chapters on the pathology of bones and joints, and perhaps on intestinal parasites. One of the most notable features of the book is its fearless departure from conventional arrangement and classification wherever modern knowledge seems to indicate it. The sections on pneumonia and on diseases of the thyroid and the kidney perhaps show this to its greatest advantage. In discussing controversial matter the author does not profess to take up a wholly unbiased point of view, and there are therefore some opinions expressed to which all will

[2] *The Pathology of Internal Diseases.* By William Boyd, M.D., M.R.C.P.Ed., Dipl. Psych., F.R.S.C. London: H. Kimpton. 1931. (Pp. xvi + 888; 298 figures. 45s. net.)

not subscribe—for instance, that atheroma of the coronary arteries bears no relation to angina (especially as it is admitted that pain of the same type occurs in coronary thrombosis). In such matters, however, the opposing theories are always stated, and it is made quite clear that the opinion given is a personal one, so that the result is rather one of added interest and individuality which does not detract from the value of the book. Apart from such expressions of opinion, there are also a few statements made which seem to us definitely incorrect ; for instance, that the clinical findings in second-stage (subacute) nephritis are identical with those of nephrosis, and that there is no retention of nitrogenous substances (p. 427). These are but a few flaws, however, in a book which on the whole is most commendable. Many of the descriptions of pathological conditions are among the clearest we have read. A textbook of pathology, moreover, which indulges on occasions in touches of real humour is a rare thing, and suggests that the author's own students are indeed favoured.

That the book is thoroughly up to date will at once be appreciated when we state that atelectasis and its relief by carbon dioxide are considered in relation to pneumonia ; that peristalsis of the bronchi is mentioned ; that tumours of the islet cells with hyperinsulinism are described ; and that in the nervous diseases section Bailey and Cushing's work on cerebral tumours is fully discussed, as are also such subjects as post-vaccinal encephalitis and the most recent work on the etiology of multiple sclerosis. A useful bibliography at the end of each chapter contains most of the important literature, without attempting to give a complete list of the less significant papers. This, while no doubt the best selection for a general textbook of this type, is a little unfortunate when it has the effect of leaving out the works of some of the authors mentioned in the text.

EXAMINATION FOR LIFE ASSURANCE

The Conduct of Life Assurance Examinations,[3] by Dr. E. M. BROCKBANK, is divided into two sections: the first dealing with the routine examination and the filling in of the medical report form, while the second is devoted to a brief discussion of the influence of various impairments on the assessment of the risk. As the volume is one of a "General Practice Series" it may be assumed that its chief purpose is to help the practitioner in his duties as a local examiner. This being so, Dr. Brockbank rightly insists on the importance of the medical report being as detailed as possible in any case of impairment, so as to give the head office officials the utmost help in enabling them to arrive at a just estimate of the extra risk. The actual classification by the medical examiner is of secondary importance ; the inclusion of all the relevant facts in the report is the touchstone of its value to the assurance company.

On the whole, it may be said that Dr. Brockbank's book will be helpful to the general practitioner chiefly in indicating the point of view required in life assurance work, which is naturally rather different from that of ordinary clinical practice. The text contains, however, various statements which seem difficult of acceptance. Thus, in a case of glycosuria, it is suggested that the subject should be asked to avoid "all carbohydrates and sugar" for twenty-four hours, and then to come up for re-examination. "The urine then tested may be free from sugar ; but in a real diabetic case it may contain some, as the sugar is made in these people from proteins of the food and from their own tissues." Surely many diabetics of moderate grade would be sugar-free under these conditions, and their acceptance at ordinary rates, as is implied in the context, would hardly commend itself as sound business. Again, the suggestion, on the strength of an extra mortality of 10 per cent., in an American investigation, that "a blood pressure of 140 mm. is dangerous," pays too great a tribute to the infallibility of statistics, and is contrary to the opinion of most experienced physicians. In connexion with this subject, on page 69 appears the statement: "In the healthy American students in 13 per cent. of the observations the diastolic pressure varied from 40 to 80 mm., with an odd case of 90 mm. ; the greatest number was about 45 mm." On page 81 we read: "If the patellar reflex is abnormal or different on two sides general paralysis must be suspected and the foot reflexes examined as well as the pupil." Statements such as these seem to call for amendment in the next edition of the book.

[3] *The Conduct of Life Assurance Examinations*. By E. M. Brockbank, M.D., F.R.C.P. The General Practice Series. London: H. K. Lewis and Co., Ltd. 1931. (Pp. viii + 173. 7s. 6d. net.)

EXPERIMENTAL PHYSIOLOGY

Dr. F. W. LAMB'S *Introduction to Human Experimental Physiology*[4] opportunely appears at a time when the methods of teaching medical students are receiving a good deal of critical attention. The book describes in detail the practical exercises which are carried out in the physiological department of the University of Manchester ; these do not deal with the whole of the subject, but only with the blood, circulation, and respiration. The ground covered is therefore not so extensive as that of Douglas and Priestley's well-known *Human Physiology*, but Dr. Lamb's work is more ambitious in character, and the course he outlines could probably only be carried out in its entirety by honours students who can devote an additional year to the study of the subject. Many alternative procedures are considered, and it is presumably left to the discretion of the teacher to select those which are best adapted to the facilities of his laboratory and the capabilities of his students. The practical directions are admirably lucid and complete, and draw attention to the various sources of error which must be avoided. A full list of references is appended to each section, and this should prove of great assistance to the senior "science" student. The descriptions of the exercises are very wisely accompanied by a fairly detailed account of their theoretical implications ; for example, a good account is given of the regulation of blood reaction and of van Slyke's work.

Professor A. V. HILL, in his cogent introduction, emphasizes the great importance of human experimental physiology in the training of students of medicine. It is far easier to interest students in physiology when they are working on themselves or their friends, and when such interest has been aroused much better results are obtained than when the practical exercises are regarded as a useless and meaningless drudgery which has to be suffered in order to satisfy unreasonable teachers—as was not infrequently the case with some of the experiments in frog nerve-muscle physiology. Most of the fundamental facts of physiology can be rediscovered and demonstrated on man ; the student can learn that his own healthy normal body is one of the most experimentable objects in the world, and by its intensive study he can obtain an idea of the normal, which is so vitally important but often so sadly lacking in those who study disease. We are in hearty agreement with Professor Hill that Dr. Lamb should further increase our indebtedness to him by preparing an equally good second volume, dealing with the special senses, nutrition, and certain aspects of the nervous system.

[4] *An Introduction to Human Experimental Physiology*. By F. W. Lamb, M.D. London: Longmans, Green and Co. (Pp. xii + 335 ; 59 figures. 12s. 6d.)

DISEASE IN CHILDHOOD

In his *Handbook of Diseases of Infants and Children*[5] Dr. F. M. B. ALLEN has provided a comprehensive but compact survey of the subject. The book is designed for the use of students and practitioners, and should prove equally useful to both; it replaces the original volume in the series by the late Dr. McCaw, and recent advances in paediatrics have made it possible to include much new material. The arrangement is clear and the printing excellent. After an introductory chapter on conditions and diseases of the newborn, Dr. Allen discusses infant feeding at great length, and covers the wide field of modern opinion on this subject with admirable clearness. Chapters on nutritional disorders, deficiency diseases, and alimentary disturbances follow, and a chapter is devoted to diseases of the peritoneum and liver. Affections of the nose, nasopharynx, and larynx are discussed, and diseases of the respiratory system are considered in detail. It is perhaps unsatisfactory that the chapter on rheumatism and chorea should follow, instead of precede, the chapter on diseases of the circulatory system; but this is a minor point of arrangement. The remaining chapters are concerned with genito-urinary diseases, syphilis, diseases of the nervous system, mental deficiency, the myopathies, blood diseases, and general conditions such as achondroplasia and Still's disease. The appendix contains a few useful recipes for preparing food, some observations on diagnostic methods, and tables showing the development of the special senses, average heights and weights at different ages, and dentition ages. A collection of prescriptions is included. Dr. Allen has purposely "avoided theories as far as is compatible with an intelligent understanding of the subject"; although, perhaps, he has avoided too much, as, for example, in his table for the diagnosis of jaundice in the newly born. On the whole, however, he has presented the subject of children's diseases with freshness and without prolixity. In his chapter on alimentary diseases he has perhaps over-emphasized the importance of summer diarrhoea, a condition which is rapidly disappearing in this country. For the treatment of enuresis and habit spasm he puts forward practical suggestions which are not found in the usual textbooks. The absence of illustrations is to be regretted.

NOTES ON BOOKS

The volume of the Practical Medicine Series on *General Surgery*,[6] edited by Dr. EVARTS A. GRAHAM, contains, as in previous years, an excellent account of the progress made in all branches of surgery. The subjects which receive special notice are anaesthesia, attention being drawn to the dangers attending the use of some of the barbituric acid compounds, sympathectomy in circulatory diseases, the surgical applications of therapeutic venous obstruction, hyperparathyroidism, the treatment of empyema, and appendicitis.

The eighth edition of *Bell's Sale of Food and Drugs*,[7] prepared by Mr. R. A. ROBINSON, is much more comprehensive in scope than its predecessors, and will be found a very serviceable guide to the interpretation of the Food and Drugs (Adulteration) Act of 1928, the various Acts dealing with milk and cream, and the numerous Regulations and Orders affecting the quality and composition of food, or prescribing methods of labelling. The statutes are well annotated and arranged in chronological order, and the statutory Regulations and Orders are classified in groups. A convenient summary is given of the powers and duties of local authorities, and much useful information has been gathered together in the appendices, including a bibliography of official publications, a selection of Government circulars, and chemical notes on common forms of adulteration.

The publication of a biography of *Francis Blight, Publisher*,[8] who was chairman and managing director of Messrs. Charles Griffin and Company for nearly thirty years, will give satisfaction not only to his many personal friends, but to those who have followed the work of this firm since it became a company in 1891. The present sketch has been prepared by the Rev. GEORGE HAWKER, and is prefaced by some introductory notes in which Mr. Blight traces his Devonshire ancestry. Much of Mr. Blight's publishing life—from which he retired in 1927—was devoted to the popularization of technical learning, a task for which he was unusually well equipped by his early training as an engineer and surveyor, and by his association with the publishing house of Messrs. J. and A. Churchill. In recognition of his services to technical literature Mr. Blight was elected a Fellow of the Royal Society of Edinburgh in 1918.

Though our profession can claim several poets of the first order, occasional verses by medical men are too often disappointing, and more particularly so when they touch on scenes of medical life. Dr. ALAN MCGLASHAN's collection of short poems, *St. George and the Dragon*,[9] appears to us to be much above the average, and to hold out promise of future achievement. The author has a sensitive mind and a delicate ear for rhythm. On the whole, his emotion rings true, and he expresses it in language that comes only to the loving student of great poetry. His hospital pieces are uneven: "The Last Visit" is as good as "Post-Mortem" with its forced realism is bad. Among the Hebridean lyrics we would give very high marks to "After the Storm."

[5] *Handbook of Diseases of Infants and Children*. By F. M. B. Allen, M.D., M.R.C.P. London: Baillière, Tindall and Cox. 1930. (Pp. vii + 595. 15s. net.)

[6] *General Surgery*. Edited by Evarts A. Graham, M.D. The Practical Medicine Series, 1930. Chicago: The Year Book Publishers. 1931. (Pp. 848; 204 figures; 64 plates. 3 dols.)

[7] *Bell's Sale of Food and Drugs*. Eighth edition. By R. A. Robinson. London: Butterworth and Co., Ltd., and Shaw and Sons, Ltd. 1931. (Pp. xxvi + 299 + 33. 15s. net.)

[8] *A Biographical Sketch of Francis James Blight, F.R.S.E., Publisher*. By George Hawker. With foreword by J. W. Ewing, M.A., D.D. London: Elliot Stock. 1931. (Pp. xxii + 176; illustrated. 10s. 6d. net.)

[9] *St. George and the Dragon: Poems*. By Alan Fleming McGlashan. London: Selwyn and Blount (1928), Ltd. 1931. (Pp. 78. 3s. 6d. net.)

PREPARATIONS AND APPLIANCES

"SUNSHINE" LAMPS

We have received from the Thermal Syndicate Limited of Wallsend-on-Tyne particulars of their vitreosil "sunshine" lamps, in which an endeavour has been made to approximate to sunshine by balancing the blue-green of the mercury arc with the yellow and red of the gas-filled filament. It is not pretended that the solar spectrum is exactly reproduced, or that the light is suitable for such operations as colour-matching, but it is claimed for the lamp that it gives an effect comparable physiologically with that forthcoming from sunlight. The lamp consists of a quartz mercury vapour burner of vitreosil (pure fused silica), together with two supplementary filament lamps mounted inside a diffusing and filtering globe of the same substance. The bowl filters out the extremely short ultra-violet rays of the mercury vapour, and allows the longer ultra-violet to pass freely, while the supplementary lamps compensate for the unpleasant colour of mercury vapour, and represent the warming and enlivening component of sunshine. The lamps are intended for general use in workrooms and offices, and for the house.

SODIUM MORRHUATE FOR INJECTION OF VARICOSE VEINS

Messrs. Burroughs Wellcome and Co. have introduced "hypoloid" sodium morrhuate as a sclerosing agent for the treatment of varicose veins. The systematic effects of intravenous injections of sodium morrhuate were investigated some years ago, and the remarkable power of the drug to sclerose veins was at once noted. Sodium morrhuate is stated to be innocuous to the subcutaneous tissues, thus reducing the risk of an "injection ulcer" to a minimum; its non-toxicity allows it to be administered in large doses. The drug is supplied in 2 c.cm. ampoules containing a 5 per cent. solution. The treatment recommended is to give a series of injections of 1/2 to 1 c.cm. of the 5 per cent. solution. This treatment can be repeated after a week's interval.

CONFERENCE ON MENTAL HEALTH

THE HUMAN FACTOR VARIOUSLY CONSIDERED

The National Council for Mental Hygiene held its second biennial conference from May 27th to 29th, at the Central Hall, Westminster. About eighty bodies, including the British Medical Association, co-operated. The subject chosen for discussion was about as wide as any subject could be—namely, "The human factor"—which was considered at successive sessions in its relation to international problems, to crime, to industry, to social services, and to education. Speakers, therefore, were tempted to roam over the whole field of human affairs, and some of them took full advantage of the liberty.

The conference was opened by Miss SUSAN LAWRENCE, M.P., Parliamentary Secretary to the Ministry of Health, who mentioned with gratification that since the previous conference the Mental Treatment Act, then foreshadowed by the Minister, had come into being. Previous legislation, she said, had been devoted to preventing the consequences of mental disease, and the idea of the safety of the community and of the patient had been the governing consideration; but now for the first time the emphasis was laid upon the possibilities of treatment and prevention. Miss Lawrence incidentally paid a high tribute to the medical profession. The politician, she said, was rather distrusted, and the press had lost a great deal of its former power, but there was one person—namely, the doctor—to whom the layman listened with respect and attention, and with an implicit belief in what he said. However sceptical the British public might be in other matters, it was extremely docile in accepting the views of medical science, and in that way, she generously declared, it showed its intelligence. The people did believe in science, and were perfectly ready to submit themselves in health matters to the judgement of experts.

The conference then resolved itself into a kind of peace meeting, and discussed the human factor in international problems. Dr. J. R. LORD, a member of the executive council of the International Committee for Mental Hygiene, spoke of the part which mental hygiene—the greatest constructive force in the world, leading, as it did, to an understanding of human nature and behaviour—could play in the avoidance of war. One point he brought out was that the mental hygiene movement, hardly known as an international movement before the war, now embraced some thirty-five societies in different countries. A suggestion made by Dr. Lord was that princes in the succession in monarchical countries should have psychiatrists in attendance, and also, of equal importance, that in democratic countries measures should be taken to ensure the mental health of high officers of State, especially those occupying executive positions.

The meeting was also addressed by Professor A. ZIMMERN, until lately deputy director of the League of Nations Institute of Intellectual Co-operation, and now professor of international relations at Oxford. Dr. Lord had described the League of Nations itself as a vast experiment in mental hygiene, and Professor Zimmern instanced some of the great services of the League from this point of view. Not the least was the fact that it had concentrated in one place the handling of complex and technical international business, and had arranged for open discussion, by which the public of different countries was being educated as to the nature of the issues. Thus the gulf was bridged between romance and reality, which had hitherto so greatly impeded the sober discussion of international problems.

At the session devoted to the human factor in crime, over which Sir HUBERT BOND presided, Dr. W. A. POTTS, psychological expert to the Birmingham justices, spoke of the need of investigation into the history of delinquents and the difficulties and handicaps of their lives. An appreciation of those difficulties was assisted by realizing the interrelation of mind and body, which was so close that physical disorders might often cause abnormal conduct. Mr. CLIFTON ROBERTS of the Howard League for Penal Reform, suggested that perhaps some enlightened member of Parliament might introduce legislation by which, in future, criminals would be described as patients, and prisons as institutions for the scientific treatment of offenders.

A discussion on the human factor in industry was opened by Sir DAVID MUNRO, secretary of the Industrial Health Research Board of the Medical Research Council, who described vocational tests; there was as yet, he said, no reliable test for temperament, the most important feature of the make-up of the human mind, unless the tests by Drs. Culpin and May Smith in their work on "The nervous temperament" proved to have universal application. Mr. C. J. BOND also mentioned experiments in vocational guidance carried out by the National Institute of Industrial Psychology. He believed that vocational guidance on the one hand, and vocational selection on the other, would grow in usefulness as they became more fully developed, and might rank in the future among the important influences helping to restore prosperity and contentment to industrial life.

The DEAN OF ST. PAUL'S presided over the session which discussed the human factor in social services, and made a plea for greater attention to eugenics. Perhaps the greatest problem for the educationist to-day, said Dean Inge, arose out of the very low average level of intelligence. The Americans applied scientific tests to over a million of their recruits in the war, with the disconcerting result that the average mental age of the American citizen was discovered to be 13—and the Dean supposed that on this side of the Atlantic it would not be any higher. In the past the progress of a nation or tribe had depended less on the raising of the average of intelligence than on its variability, whereby a few highly gifted leaders were thrown up. But average ability was now coming to be of greater importance.

Dr. H. CRICHTON-MILLER, honorary director of the Tavistock Square Clinic, discussed with frankness the problem of the marital relation. He said that monogamy, which had been the accepted ideal of Christian civilization for many centuries, and was much older than Christianity, of course, was now threatened in a way which to some of them appeared alarming. The question was how, by taking thought, one could make any difference to the amount of maladjustment which was so evident. In the view of the psychologist, the Church had made the situation more difficult by demanding certain commitments in the name of monogamy which were not psychologically possible. The Church had acted quite naturally and rightly from its own point of view, but it had neglected the fact that while behaviour could be commanded, feelings could not be commanded, and because human beings could not command their feelings they had no right to make them the subject of solemn pledges. Dr. Crichton-Miller, however, thought it a proper line of argument that for this very reason, because emotional feelings could not be pledged beforehand, the relationship should be all the stronger on the behaviouristic side, and conduct must be all the more necessarily pledged. The guiding consideration always should be posterity. All the difficulties of the marital relationship ought to be subordinated entirely to the trusteeship of parenthood. By so doing we should get away from "this froth and bubble about companionate marriages."

Another speaker was Dr. ISABEL G. H. WILSON, Commissioner of the Board of Control, who discussed in a happy way the different types and motives of social workers, calling for sympathy and understanding of all types, even including those who "always wore a halo round their heads." The closing session was a very domestic affair, with a discussion on the bringing up of children, in the course of which the one medical speaker, Dr. F. C. SHRUBSALL, uttered some home truths in child psychology, such as, for example, that a nagging household produced an irritable child, and that it was useless to recommend to a child a course of action which was not practised in the family.

British Medical Journal

SATURDAY, JUNE 13th, 1931

SURGERY AND DIET

For three decades and more surgeons have been applying their art to diseases and disorders which formerly fell within the purview of the physician. Are physicians to turn the tables on surgeons and demonstrate that many—if not most—surgical disorders are preventable? The mass experiments described by Colonel Robert McCarrison in two lectures recently given at the Royal College of Surgeons of England, the second of which appears in our present issue, prove beyond cavil that rats, improperly fed, become liable to many of the surgical diseases and disorders to which human flesh is heir, while the same stock of rats, properly fed, retain perfect health. Coming after the brilliant Hastings Lecture,[1] so recently delivered by Professor Edward Mellanby, the results now published by Colonel McCarrison, based as they are on a quarter of a century of systematic and persistent inquiry, give the surgical mind matter for its most serious consideration. We are passing from a period in which bacteria were held of more surgical importance than diet, to one in which a knowledge of diet is to be regarded as more important than a knowledge of bacteria. It is the physician or dietitian who is leading the way. Who would have thought, ten years ago, that an error in diet would render us liable to such diverse conditions as middle-ear disease, duodenal ulcer, renal calculus, or cystitis? Yet that is what all recent experiments in diet go to prove. It does seem as though the physician is again to come into his own. The surgeon of the future, it now appears, will have to be a master of dietary as well as a skilled operator and diagnostician. A full knowledge of foods may be the key not only to prevention, but also to cure.

Professor Edward Mellanby ascribes to vitamin A, which most of us obtain from the milk, butter, eggs, and green vegetables we consume, the chief role in safeguarding the body from surgical infections ; and of this view readers of Colonel McCarrison's lectures will find the strongest confirmation. Historically it would be more just to say that the results now arrived at by Colonel McCarrison are a confirmation of a conviction which was forced on him by experiments he carried out in 1913-14, just before the great war. Sir Frederick Gowland Hopkins had by then demonstrated that certain "accessory food factors" were necessary to growth and to health ; McCollum, Davies, Osborne, and Mendel had entered the field of inquiry, and were separating one factor from another. It was while McCarrison was at work on goitre that Casimir Funk gave the name "vitamin" to accessory food factors, and threw out the hint that they might be akin to substances formed in the glands of internal secretion. Just then McCarrison, as a result of ten years of inquiry, had succeeded in producing goitre and cretinism under experimental conditions. Turning aside to ascertain the effect produced on the thyroid by an imperfect dietary, he fed pigeons on milled rice. It was not, however, the effect on the thyroid that impressed him, but the liability of the birds thus fed to become subject to infections. Pigeons given a normal diet, he found, were almost free from infection. The deduction he drew from his early experiments was this: "Appropriate food is thus shown to afford protection against the invasion of the body by—or the growth therein of—certain highly virulent organisms."[2]

Colonel McCarrison was himself the first to demonstrate the extent of the damage wrought in tissues and organs of the bodies of animals which had been fed on deficient dietaries. Resuming his investigations after the war, a spare laboratory was assigned to him in the Pasteur Institute which Lord Curzon had established in the Nilgiris, Southern India, for the treatment of rabies. He equipped his laboratory, trained a native staff of assistants, raised a stock of rats, and proceeded to carry out dietetic experiments on an extensive scale, being still an officer in the Indian Medical Service, attached to the Foreign and Political Department. He was not content merely to note the effects of selected dietaries on the growth of his animals, but undertook a minute and systematic examination of their bodies to find out what had happened to their glands and internal secretions, and to what extent they had become subject to infection. It was while carrying out these examinations that he was struck by the gross changes which had occurred in the lining membrane of the whole alimentary tract ; the epithelial lining, especially that concerned in the secretion of mucus, was manifestly in an unhealthy state. The changes he observed were almost identical with those which occur in the human great bowel in cases of chronic colitis and stasis. He found similar changes in the lining membranes of the respiratory, urinary, and genital tracts of animals long subjected to deficient dietaries.[3] From these observations he inferred that devitaminized foods or unbalanced diets broke down the epithelial defences of the body, and thus rendered the animals experimented on liable to infection. Quite independently, Dr. W. Cramer, working in London, observed the profound changes undergone by the intestinal epithelium and lymphoid tissue in rats deprived of certain food factors.[4] The researches of Dr. S. Mori (1922), Drs. Wolbech and Howe (1925), and of Mellanby and Green (1928) proved that a sufficient supply of vitamin A was necessary to maintain the epithelial systems of the body in a state of health. Colonel McCarrison and Dr. Cramer attribute the sole "anti-infective" action of vitamin A to its maintenance in health of the epithelial linings and intestinal tissues of the body. Indeed, Colonel McCarrison, in the lectures just published, goes further,

[1] *British Medical Journal Supplement*, March 21st, 1931, p. 85.

[2] *Indian Journal of Medical Research*, 1919, vi, 344.
[3] Ibid., 1919, vi, 275 ; 1919, vii, 167, 188.
[4] *Lancet*, 1923, i, 1046.

and claims that the defensive mechanism of the body may be injured by any improper mode of feeding. To place the living body in the best position to resist the infections to which it is at all times exposed it must be supplied (1) with a due allowance of all accessory food factors ; and (2) with all necessary inorganic ingredients —calcium, phosphorus, iron, and iodine. These must be properly " balanced," not only with each other and with the essential vitamins, but also with the carbohydrate and protein substances included in the dietary. Probably there is an optimum " balance " for each individual human being, which changes with each decade of life.

It is this promising but complex field of research, one which seeks for protection against medical and surgical ailments in a better knowledge of dietetics, that is now being opened up, and to which the lectures just given at the Royal College of Surgeons by Colonel McCarrison make so valuable a contribution. Especially is the work he is doing of the utmost significance for the health of millions of our fellow subjects in India.

THE PROMISE OF YOUTH

The third volume of the remarkable series *Genetic Studies of Genius*[1] has now appeared, and in it Professor Terman and his associates carry a stage further the arduous and fascinating task that they have set themselves. The study originated with the careful selection of 1,000 exceptionally gifted children in California. The children of the gifted group were included well in the top 1 per cent. of school children. Most thorough investigations of all kinds were carried out on these children, including anthropometrical measurements, health data, intelligence, personality, and other psychological tests, studies of heredity and human conditions, and other factors too numerous to mention. The result was the first volume of the series, which was reviewed in our columns four years ago.[2] The second volume recorded the results of the study of the early mental traits of 300 geniuses of all centuries.

The present volume is a sequel to the first, and is largely concerned with a complete re-testing and re-examination, after six years had elapsed, of the gifted children originally studied. In general the earlier promise has been fully realized. For example, boys of the gifted group attending Stanford University reached a scholarship average slightly above that of Stanford freshmen. This is a remarkably good result, because the selection of Stanford students is stated to be so rigorous that the gifted children are competing with students whose level of ability is little lower than their own, and who are nearly two years older on the average. The proportion of the group who have graduated from Stanford " with distinction " or " with great distinction " is more than double the average for Stanford students generally. A repetition of the intelligence tests shows a certain fall in the intelligence quotient, and this fall is quite large in a small proportion of cases. It is particularly interesting that in the cases where a marked fall has occurred no connexion can be found with health, with personality traits—that is, poor balance or undesirable social attitudes—with race, or (most remarkable of all) with environmental conditions. The suggestion is advanced that fluctuations in the intelligence quotient (or I.Q.) are reflections of changes in the rate of mental growth, and are in all probability inborn. It is also shown that the earlier test is the better index of inborn ability. The authors hope to follow up their group at further intervals, and it will be very interesting to observe whether these changes in I.Q. are temporary or permanent. Once again the normality of the gifted children from the point of view of social and personality traits is emphasized. The health history appears to have been good. In the earlier study it was recorded that the gifted group on the average had much more sleep daily than unselected children, and although the difference is now somewhat less they still sleep more than unselected children at all ages up to 17.

The original study was one of unique value and importance as a record of actual data that might replace hazy impressions and prejudices, and the present volume is essential as a further instalment of the original plan. But it possesses in addition a special and human interest that makes it a most attractive volume for the general reader. Selected case histories are given, and it is impossible not to comment on the humanity with which these are written. The cases quoted in the chapter entitled " The conquest of obstacles " form an appealing record. The third part of the volume is a study of literary juvenilia. A tentative scale for assessing their merit is proposed, and the whole section is fascinating. We wish that there were space in which to quote some of the remarkable exploits of these infant prodigies. For example, " Millie," who at the age of 26½ months extracted the greatest enjoyment from reading, and had a reading vocabulary of 700 words. But if we had to pick a favourite we think our choice would fall on " Verda," a girl of strongly marked literary abilities. Her first poem was composed at the age of 2 years and 9 months, and records her reaction to the effects of a double mastoid operation. At the age of 5 Verda composed a remarkable poem, which she printed without any spacing between the words. It is not surprising to learn that her subsequent progress was phenomenal. At the age of 11 years and 7 months her I.Q. was 186, which places her among the foremost members of the gifted group. At the age of 16 years and 4 months her score on the Thorndike test was 109, which is said to be one of the highest scores on this test ever made by a woman. At 17 she entered college, and her college career has been one of unbroken success.

The authors trust that it will be possible to re-examine the group after an interval of another ten or fifteen years. We hope that this will indeed be done. In the meanwhile, the present record is of the greatest interest and value.

[1] *Genetic Studies of Genius.* Vol. iii: *The Promise of Youth.* California: Stanford University Press; London: G. G. Harrap and Co., Ltd. (21s. net.)

[2] *British Medical Journal,* 1927, i, 1113.

LONDON'S NEW UNIVERSITY BUILDINGS

Lord Macmillan, who presides over the Court of the University of London, addressed the Royal Institute of British Architects a few days ago, and in allusion to the imminent development of the Bloomsbury site for university purposes, described it as an interesting adventure, which he was sure would be carried to an outstanding success. The University of London, he said, was embarking upon an architectural scheme which would alter the aspect of the centre of the capital, and he believed that within the time of most of those present there would be completed an architectural group worthy to be named with any of the monuments of antiquity. Lord Macmillan confessed that while he believed in the art of ancient times, he thought each generation was inclined to belittle itself in marvelling at the achievements of the past. He was sure that British architecture of the present day could supply the University of London with a worthy home. A day or two after Lord Macmillan had spoken, the name of the architect chosen by the Court was announced, and further particulars, officially supplied, will be found at page 1044. The work is to be entrusted to a single architect—namely, Mr. Charles Holden of London, who has been responsible for many works of beauty and distinction. The best known is the building which houses the headquarters operations of the Underground Railway at St. James's Park, where Mr. Holden has shown his skill in dealing with a closely surrounded site. At Bloomsbury he will have the advantages of an open site of ten acres, with fine surroundings, including some buildings of a university character. The work is expected to occupy from twenty to thirty years, and to cost between £2,000,000 and £3,000,000, but the architect is to prepare at once a general design for the whole of the site so as to ensure that the work shall proceed upon harmonious lines. It is quite possible, of course, that during the next generation the character and compass of university teaching will be greatly altered, and sufficient margin is to be left for additions and modifications to meet academic needs as yet unforeseen. The site of this great building scheme extends from Montague Place on the south, opposite the north façade of the British Museum, almost to Euston Road on the north. On the west side it extends for the whole length of Malet Street, on which the London School of Hygiene and Tropical Medicine has a frontage, and on the east side the line of the site runs through Russell Square, Upper Montague Street, and Woburn Square. Torrington Square (so miscalled, for it is really a wide avenue) runs through the centre of the site, and there is some idea of keeping this as a garden space, so as to give the enclosure something of the quietness and atmosphere of the Temple or Lincoln's Inn. A plan of the site and an air photograph were reproduced in an article on the future of the University of London, published in these columns four years ago.[1] The house of the British Medical Association, in Tavistock Square, is two or three minutes' walk from the north-east corner of the site, and University College Hospital about the same distance from the north-west corner. The first part of the site to be developed will be the land, already vacant, at the southern end, where the administrative block of the University will be erected, also the University hall and library.

[1] *British Medical Journal*, 1927, i, 975.

REPORTS OF THE PHARMACOPOEIA COMMISSION

Our readers will be aware that a new edition of the *British Pharmacopoeia* is in preparation. The General Medical Council is now publishing reports embodying the conclusions of the subcommittees which have carried out much of the work of revision. The report by the Pharmaceutical Chemistry Subcommittee[1] deals chiefly with the tests for purity of drugs. This is of necessity a highly technical document, but the reliability and accuracy of these tests is of great importance, in the first place for the safeguarding of patients, and secondly, because the *British Pharmacopoeia* is a presumptive legal standard. It is a well-known fact that in many cases in the past the standards adopted by the leading drug firms for certain drugs have been in advance of the standards laid down by the *Pharmacopoeia*, and the medical profession will be glad to learn that it is proposed to formulate official and adequate standards of purity for such drugs as the following: anaesthetic ether, chloroform, nitrous oxide, oxygen, barium sulphate, and carbon tetrachloride. In all these cases a high standard of purity is essential for the safety of the patient. Another report has been issued simultaneously by the "Cod-Liver Oil Colour Test Subcommittee." This subcommittee found that the blue colour test for the vitamin A content of cod-liver oil gave variable results with different workers, and has laid down standard conditions, which will ensure uniform results. It also suggested a suitable lower limit for the vitamin A content in cod-liver oil. The Pharmacopoeia Commission has, however, decided not to impose a test for the vitamin D content of cod-liver oil, because almost all samples contain enough vitamin D for therapeutic purposes, and it considers that the biological test for vitamin D—the only one available—is so expensive and time-consuming that it ought not to be imposed unless absolutely necessary. The commission is, however, considering the official adoption of the unit laid down by the Medical Research Council for vitamin D. The official adoption of this unit would be a great service, for it would encourage uniformity in the description of the vitamin activity of cod-liver oils sold in this country. As was mentioned recently in these columns[2] the Norwegian unit works out at less than half the British unit, and this diversity is unfair to the Empire products.

SILICOSIS IN SOUTH AFRICA

An authoritative expression of the South African teaching on silicosis has long been desired, and the admirable account just received[3] will be eagerly welcomed by all workers on the subject. It consists of three papers presented at a meeting of the Transvaal Mine Medical Officers' Association, held in Johannesburg in October last, and published as a special supplement to the *Proceedings* of the association. The first paper, on the histo-pathology of silicosis, is by Dr. F. W. Simson of the Department of Pathology of the South African Institute for Medical Research, Johannesburg.

[1] Published by Authority of the General Medical Council, 44, Hallam Street, W.1. (3s.)

[2] *British Medical Journal*, May 16th, 1931, p. 853.

[3] *Proceedings of the Transvaal Mine Medical Officers' Association*. Vol. x. No. 118. Special Supplement. Silicosis in South Africa. A Symposium on the Histo-pathology, Pathological Anatomy, and Radiology of the Disease. Johannesburg, October 23rd, 1930. Issued by the Association, Chamber of Mines Building, Box 809, Johannesburg.

The anatomy and lymphatic apparatus of the lung are first discussed, and the author advances the view, based on the study of lungs from cases of "status lymphaticus," that lymphoid tissue occurs in the lungs only in direct relationship to the air passages and their terminations, and not, as is generally held, in association with blood vessels. A brief account of the fibrosis caused by dusts other than silica is followed by a description of the formation of the specific silicotic lesion—the silicotic islet. The author considers that there is a type of pure silicosis which can be shown by biological tests to be free from any association with tuberculosis. He also recognizes a form of "infective silicosis" in which the infective agent is usually the tubercle bacillus, and describes the mode of origin of the lesions. The second paper, on the pathological anatomy of silicosis, is by Dr. A. Sutherland Strachan. While denying that lymph stasis due to the involvement of the mediastinal lymph nodes is a necessary precursor of pulmonary silicosis, Dr. Strachan draws attention to the importance of silicosis of the thoracic glands, which may secondarily involve the oesophagus and the bronchi. In this paper, again, the importance of infective silicosis is emphasized. The third paper, on the correlation of the pathology, radiology, and symptomatology of silicosis, is by Dr. L. G. Irvine, chairman of the Miners' Phthisis Medical Bureau. Starting with a review of the pathology of the disease as described in the previous papers, Dr. Irvine discusses the clinical manifestations of the various stages of the disease, and the appearances seen in the corresponding radiographs. The classification of the radiographs adopted by the Medical Bureau and their interpretation are dealt with in detail, and the paper concludes with a section on the legal aspect of diagnosis, incidence, and prognosis. The volume contains a beautiful series of thirty-two plates illustrating the morbid anatomy and histology of the disease, and representative radiographs.

OPHTHALMOLOGY IN EGYPT

The fourth annual report of the Giza Memorial Ophthalmic Laboratory in Cairo[1] is a good indication of the type of work which is now being carried on in Egypt. As might be expected, attention is largely focused on the problems of trachoma. During the last year the staff of the laboratory has carried out much patient work on the subject of the etiology of the disease, and while the results have been largely negative, the matter is of such extreme importance to the country that every effort must still be directed towards the elucidation of its special problems. Further observations have been made on the occurrence of lesions simulating trachoma in monkeys. The report states that it is important to note whether the follicles seen on the conjunctivae of these animals rupture spontaneously or require to be expressed, for it is this feature which distinguishes the follicles of trachoma from those of other follicular diseases of the conjunctiva. Three different strains of *Bacillus granulosis* of Noguchi were received from the Rockefeller Institute, New York. These were found to agree in all their reactions with those described by Noguchi. But experimental inoculations, following exactly the technique of this worker, were entirely negative, even after periods extending to six months. Following the inoculation all the animals developed a slight congestive reaction which rapidly disappeared. Nearly all presented one or more scattered translucent follicles, and when the eyes were examined very carefully with the corneal loupe, pinpoint follicles were visible along the upper edge of the tarsus ; there was, however, an entire absence of all inflammatory signs. One experiment was made upon a human subject. The conjunctiva of a blind eye, which had traces of healed trachomatous infection, was inoculated with *B. granulosis*. The patient was watched for two months, but no signs of recurrence of the disease appeared. This is in marked contrast with the effects of an accidental infection. A doctor, when expressing trachoma follicles from a patient, received a splash of the material in his eye. Despite the fact that the eye was immediately bathed, there was a slight discharge two days later, and on the fourth day the palpebral conjunctiva was acutely congested. By the eighth day follicles appeared on the upper border of the upper tarsus, and on the eighteenth day they had covered the tarsus. The whole conjunctiva was acutely injected. Despite the fact that active treatment was carried out from the beginning, there was still chronic congestion after ten months. Until now, statistics of the eye conditions of the population of Egypt have usually been compiled from figures obtained from the Government ophthalmic hospitals, from school clinics, and from census returns, but never before has the whole of a village been examined. This year a typical Egyptian village was chosen for investigation. Bahtim has a total population of 3,549, of which 3,058 were investigated. Excluding 139 infants under 1 year, the remainder were found to have trachoma, in one stage or another, except for one marasmic child, aged 1. It was evident that the people became infected with trachoma very early, the largest proportion in the first year of life. There is a great and early tendency for the trachomatous process to cure itself by cicatrization. The active and most infective stages of trachoma are rarely seen in adult life. Complete spontaneous cure without complications is not very common, although it is remarkable to note the early age at which this sometimes occurs. The incidence of acute mucopurulent conjunctivitis was also noted. This was relatively rare after childhood, the probable explanation being that in patients of 10 years of age scar tissue has largely infiltrated and replaced the normal conjunctival mucosa. Of the 139 infants under 1 year only 19 were found to have normal conjunctivae ; none were found normal after the second month of life. Nearly 40 per cent. had acute conjunctivitis, and these patients were entirely neglected. Superstition is partly responsible for the neglect ; this emphasizes the great need for education, without which no real improvement can be expected. Trichiasis was found in 21 per cent. of the inhabitants as the result of trachoma ; 5.59 per cent. were blind in one eye, and 1.05 per cent. in both eyes. The standard was severe—namely, inability to count fingers at a distance of one metre. Acute ophthalmias and their effects accounted for 75 per cent. of the blindness. The report accentuates the fact that the findings of the

[1] Schindler's Press, Cairo. 1930. (Pp. 138 ; 16 plates.)

examination of this village are of more than local interest. The village is typical of the greater part of Egypt, and it is stated that what was found in that small place is true for the whole country. The inevitable conclusion is that a great amount of the blindness in Egypt may be, and can be, prevented if treatment is sought early. There are some interesting reports of investigations into novel forms of treatment of trachoma. Intravenous injections of copper salts were tried, but their effects were uncertain. There was possibly some beneficial effect on the acute signs, but the more chronic symptoms were not relieved. In one case there was improvement in one eye, but there was a recurrence in the other during the treatment. Phenolaine, for which startling claims have been made, was not found to possess any definite advantages over such remedies as yellow oxide of mercury and dionine in clearing corneal nebulae. Further, the method is laborious, and is sometimes followed by unpleasant after-effects which are otherwise never seen. Consideration is given to the possible explanation of these divergent findings. One source of fallacy is the testimony of the patient himself. He may fancy his vision has been improved by the treatment, despite the fact that a careful record of his original state and of the condition at the close of the treatment may show no changes in objective signs and no improvement in visual responses.

A SOCIALIST MEDICAL CONFERENCE

During the last week-end of May a Socialist medical conference was held in Carlsbad, Czechoslovakia. Nearly two hundred doctors were gathered together from different parts of Europe as representatives of some ten national Socialist medical associations. The British section consisted of Mr. Somerville Hastings, M.P., and Dr. W. Rutherford, both of London. They were representatives of one of the smaller sections, because the British Socialist Medical Association has only been in existence a few months, and numbers not more than a hundred members. The German and Austrian sections, however, are much larger ; each has over a thousand members, and publishes a monthly paper. The chief business of the conference was the formation of an international association, and the drawing up of its constitution. Affiliation to this will in no way affect the policy or organization of a national section. The central bureau of the association is, for the present, located in Berlin, with Dr. Ewald Fabian as secretary. An executive consisting of one or two members from each of the ten countries represented was formed, and instructed to work out the constitution in further detail, and determine the place of meeting and agenda for the next annual conference. London was one of the places proposed. Perhaps the most elegant speech of the conference was made by Engelbert Graf, Member of the German Reichstag, who dealt with the effects of the present economic world crisis on the public health. It was pointed out that in many countries the health of the children, especially those of unemployed men, was being definitely lowered, and that in the younger unemployed men nervous disorder and crime were increasing. A resolution was carried in favour of larger allowances for the unemployed, raising the school-leaving age to 16, shorter hours of labour, and the building of more houses for the people. The resolution concluded with a declaration that crises like the present will only be permanently abolished when the economic order of society becomes socialistic.

THE ROSS INSTITUTE

The annual report for 1930 of the Ross Institute and Hospital for Tropical Diseases is of special interest in view of the considerable attention paid in it to malaria, particular reference being made to the economic damage done by this disease, and the preventive policy which is advocated by the Ross Institute. Sir Malcolm Watson has prepared a memorandum covering the past history of the fight against malaria and defining the present position; this is published as an appendix to the report. The progress of the antimalarial campaign in the Federated Malay States is discussed in detail, and the value of expending money and thought on health measures is clearly indicated. An Indian branch of the Ross Institute came into active being last August ; it is designed to assist industries in the prevention of malaria among their staff and to conduct further researches in this respect. Dr. G. C. Ramsay, who is in charge of the branch, has been making a careful investigation of the malaria problem in Assam. An illustrated booklet has been published in this connexion, showing how a successful biological control of mosquito multiplication can be obtained by planting swamps and slow-running streams with certain plants which grow quickly and completely shut off the sunlight from the water.

THE HISTORY OF THE ASSOCIATION AND THE CENTENARY

In an annotation published in our issue of November 17th, 1928 (p. 905) we gave notice that on the occasion of the centennial meeting next year it was proposed to publish in volume form a *History of the British Medical Association*. For this purpose information as to the foundation of Branches was particularly desired, such as is not accessible in the medical journals, for it was felt that in the minute-books of the older Branches and the records of local medical societies there might be much of interest to us to-day. Any information in any way bearing on the history of the Provincial Medical and Surgical Association or the British Medical Association will be thankfully acknowledged by the Medical Secretary.

THE ST. CYRES LECTURE

We much regret that by inadvertence Sir Thomas Lewis was not sent a proof of the full report of his St. Cyres Lecture which appeared in our issue of May 30th, page 941, under the heading " Ischaemia of Muscle as a Cause of Anginal Pain." Through that oversight Sir Thomas Lewis had no opportunity of correcting a number of mistakes ; and he must therefore not be held responsible for the abstract of his lecture as published in these columns.

Mr. N. Bishop Harman has been elected an honorary member of the International Association for Prevention of Blindness, in recognition of his initiation of the myope (or sight-saving) classes for children in London in 1908.

We regret to announce the death, on June 6th, of Colonel Sir Robert H. Firth, K.B.E., C.B., F.R.C.S., late A.M.S.

THE PLACE OF MEDICAL SOCIETIES IN THE PROGRESS OF MEDICINE*

BY

RAYMOND CRAWFURD, M.D.OXON., F.R.C.P.

We are gathered here to-day to celebrate the centenary of the Harveian Society of London, and we are honoured by the presence of representatives of the sister society of Edinburgh, founded in 1782, and of that of New York, founded in 1905. The occasion may be not inopportune for considering some features of the life-history of medical societies in Great Britain.

THE THREE HARVEIAN SOCIETIES

Human activity, in so far as it is enduringly fertile, is not the chance product of a few creative minds, but is conditioned by its antecedents and environment, and tends to express the dominant tendencies of the time. Thus the Harveian Society of Edinburgh was born of a demand that found expression in various ways in the last quarter of the eighteenth century for the democratization of medical knowledge. Phoenix-like it arose out of the ashes of an older Aesculapian Society, membership of which had been exclusive and limited to Fellows of the Royal Colleges of Physicians and Surgeons. The Harveian Society opened wide its doors, not only to these Fellows, but also to medical graduates, neighbouring practitioners, and the naval and military medical services as well. The Scottish genius for conviviality seems to have asserted itself in the constitution of this society, as it kept in the forefront of its programme the cherishing of friendliness among members of the profession, and the degrees conferred by it included "Doctor of Mirth and Social Joy" and "Doctor of Merriment." So this society was true to Harvey's injunction as to the importance of cherishing actively the spirit of good-fellowship as an assurance of usefulness and stability.

The Harveian Society of London was launched on its career of enduring prosperity at a time when educational reform was alive and active in every branch of intellectual activity. In London, in little more than a decade, University College, King's College, and the University of London came into being. Medical societies had already spread from their first metropolitan homes in Edinburgh and London to the provinces, and in 1819 a further tendency to decentralization within the growing metropolis had declared itself in the foundation of the Hunterian Society, for the benefit of the medical profession in the East End of London. The purpose of this Harveian Society at its birth was to do the same for the West of London, for it should be remembered that in 1831 the centre of medical activity was not, as now, in Harley Street, but in the district adjacent to the British Museum.

One important function of medical societies has been to provide a medium for the conveyance of fresh knowledge from the centre to the periphery of the profession. Scientific discoveries tend to be minted in minds concentrated at the centre, but it is by the minds of the multitude of practitioners scattered throughout the country that the golden coins gain extensive currency. The flow of fresh knowledge has thus been mainly centrifugal, and very little in the reverse direction, for the country practitioner is more directly concerned with the art of medicine, which is individual and incommunicable, while the science of medicine is catholic and susceptible of ready transmission. A notable exception, however, to the general rule was Jenner's work on vaccination, a piece of scientific work that was readily practicable only in the milieu of a rural practice; while, later still, from the genius of Manson, Ross, and others, we at home have learned that the highest scientific achievements may be compassed in the outposts of our far-flung Empire. At its foundation this society declared its purpose to be "to promote a free communication and, whenever practicable, a demonstration of facts and inferences relating to all departments of medicine, regarded both as a science and an art." Here, then, was a common meeting ground for the exponents of both the art and the science of medicine, and this throughout its hundred years of existence has been its peculiar cachet.

The Harveian Society of New York was founded in 1905. Its avowed purpose was to convey to the medical profession generally, by means of lectures delivered by experts in different branches of medical science, knowledge gained by experimental investigation in the laboratory. It was felt that such knowledge was liable to be buried in specialized publications that were not readily accessible to the general practitioner. Anyone who is familiar with the annual volumes in which these lectures are published cannot fail to recognize the great measure of success that has attended this high endeavour. This society, then, is the natural corollary of the rapid growth of experimental research that has been an outstanding feature of twentieth-century medicine.

FUNCTIONS OF MEDICAL SOCIETIES

This brief outline of the activities of these three Harveian Societies affords some indication of the various ways in which medical societies have aided in the diffusion of knowledge by the agency of discussions, papers, lectures, exhibition of patients and specimens, demonstrations, and the printing of proceedings, but it does not cover the whole ground, for some societies have enlarged the scope of their transactions so as to include reviews of books and abstracts of articles of scientific value, the usefulness of which to medical men can hardly be overrated, while others have added the manifold amenities of a well-organized library.

The *diffusion* of knowledge has been the primary, but by no means the exclusive, purpose of medical societies, for the methods adopted for the active diffusion of knowledge cannot fail to have some share both in the *acquisition* of existing knowledge and in the *creation* of new knowledge: the larger and more affluent medical societies have indeed lent themselves to the acquisition of knowledge only in a less degree to its diffusion. In the acquisition of knowledge books and periodicals necessarily play an important part, and to this end not a few societies have provided their members with libraries, the most highly systematized of which have already attained a very high degree of utility and excellence.

The creation of new knowledge can in the nature of things form only a very limited part of the activities of a medical society as such. It is true that the intercourse of fertile minds does give birth to new conceptions, and these in turn engender others, and this constitutes a creative act; but the experimenter who would commune with nature must needs enter his chamber and be still, and his chamber is the laboratory, not the meeting house. So, too, fruitful observation postulates the presence of the objects to be observed in a suitable milieu, and in the case of morbid material, living or dead, that milieu is the hospital or its clinical equivalent.

If we trace back the development of medical societies to its source, we find that the earliest were concerned at

* An address to the Harveian Society of London at its Centenary Celebration on June 11th, 1931, at St. Bartholomew's Hospital.

least as much with the acquisition and creation as with the diffusion of medical knowledge: the more restricted function has been gradually evolved. Both Bacon and Harvey have left us a picture of the constitution and scope of the society to which they would have entrusted the future of medical science. Each of these men was a typical product of the spirit of an age that had its roots in the Reformation; each was a champion of the scientific scepticism that, with the emancipation of the human mind from the tyranny of authority and dogma, sought by means of observation and experiment to find a rational basis for the interpretation of physical phenomena.

BACON'S HOUSE OF SALOMON

Bacon believed that science might be immensely advanced if the whole civilized world could be linked up into one scientific federation for the creation and dissemination of knowledge, and his allegorical picture of Salomon's House in the ideal commonwealth of Bensalem represents the organization by which he would make his idea effective. His college was to consist of thirty-six Fellows, half of whom were to be engaged in the acquisition and recording of all existing knowledge of discoveries and inventions from every conceivable source in all parts of the world; the other half, in six groups of three each, was to be engaged in the devising, directing, executing, and recording of new experiments. Such was to be the guiding personnel of his visionary College, of which the equipment was to be on the most lavish scale. If to-day some master mind were to fashion a scheme by which all scientific societies, covering every branch of science, should be amalgamated into one colossal institute, if he were to give each professor a free hand to construct, equip, and staff his department on the most lavish scale the professorial mind could conceive, with the addition of an unlimited secretariat and foreign correspondency, the whole directed by an all-wise and all-embracing research council, we should still have but a pale exemplar of Bacon's House of Salomon.

It might appear that Salomon's House has but a slender claim to figure in the lineage of the medical society of to-day, but such is not the case, for there is indisputable evidence that it had a direct and important influence in promoting the foundation of the Royal Society, and further evidence that the earliest purely medical societies did consciously adopt as their model certain features that had been tried and approved in the constitution and procedure of the Royal Society. Bacon did not even differentiate medical science from the general corpus of natural philosophy; nevertheless he did include it, and made abundant provision for the acquisition and creation of new knowledge, while leaving the discoveries to be their own advertisement. Though Bacon, and not Harvey, is thus the true progenitor of our Royal Society, that great corporation has flourished not in the leading-strings of Bacon, but by the free and independent pursuit of the method and practice of Harvey. That its birth was delayed until Bacon had been dead thirty-six years and Harvey was in his grave, was again an accident of the times, brought about by the disintegrating influence of years of civil commotion.

Other influences than Bacon's large-scale plan contributed to the foundation of the Royal Society. Evelyn was one of its founders, and his letter to Boyle in 1659, indicating his willingness to endow at his own expense a college, the members of which "would resign themselves to live profitably and sweetly together after the manner of the Carthusian Convent in Paris," shows that the example of the monasteries survived their demolition: his college was to do for science what the monasteries had done for religion.

HARVEY'S CONTRIBUTION TO THE DEVELOPMENT OF MEDICAL SOCIETIES

Due recognition has not been accorded to Harvey's place in the life-history of the medical society, though it is plain for all to see in the indenture by which he conveyed to the College of Physicians his patrimonial estate of Burmarsh. Harvey was not the man to weave from his imagination the insubstantial fabric of a dream, as Bacon had done; he sought to build on foundations that lay ready to receive his superstructure in his beloved College of Physicians; in his mind, as in Bacon's, the organization of the medical society had not emerged from the collegiate stage. In this indenture, after providing for an annual feast within the College, he ends with an exhortation "to search and study out the secrets of Nature by way of experiment; and also for the honour of the profession to continue in mutual love and affection among themselves, ever remembering that *Concordiâ res parvae crescunt, discordiâ magnae dilabuntur.*" In these words Harvey lays down the very lines on which medical societies have subsequently developed, their educational purpose being supplemented by a bond of good-fellowship and conviviality. Harvey had only too good reason to appreciate the value of mutual friendliness to the advancement of medical knowledge. The acerbity and antagonism with which many of his professional brethren had greeted his proof of the circulation of the blood had seared the inmost recesses of his soul, and he is recorded as saying that the stoniest soil of all was in the minds of men over 40 years of age. He, too, had reason to stress the importance of the social bond. All his life he had been a solitary worker, tireless, as John Hunter after him, in the practical study of comparative anatomy. Only once do we catch a glimpse of him in active collaboration with a fellow worker, comparing notes of his embryological studies with George Bathurst of Trinity College, Oxford, who kept a sitting hen in his rooms to incubate eggs, which he examined day by day to observe the stages of development of the embryonic chick. That Nathaniel Highmore was also independently at work at the same inquiry in the same College need not lead us to assume that the College eggs were peculiar in suggesting compellingly the study of embryology, but rather, as John Hunter has naïvely said of the development of birds in eggs, "It would almost appear that this mode of propagation was intended for investigation."

One more feature of many medical societies is forestalled in Harvey's will, devising a sum of money for a librarian and for the upkeep of the library he had already presented to the College, so that medical men might have ready access to the contributions that others had already made to the sum of medical knowledge; and for the diffusion of knowledge, were there not in existence endowed lectures, in which he himself had already achieved immortality by first setting forth in his Lumleian Lectures his proofs of the circulation of the blood? Viewed, then, as a whole there is little in the constitution of the medical societies of to-day on which Harvey has not long since pronounced substantial benediction. Perhaps, therefore, our three societies have done well to adopt his patronymic, for the circulation of medical knowledge is as vital to the higher professional life as is the circulation of the blood to higher animal life.

The contrast of Bacon and Harvey is well expressed in some lines of Browning in "A Grammarian's Funeral":

> The low man seeks a little thing to do,
> Sees it and does it;
> This high man, with a great thing to pursue,
> Dies ere he knows it.
> That low man goes on adding one to one,
> His hundred's soon hit:
> This high man aiming at a million
> Misses an unit.

GROWTH OF THE ROYAL SOCIETY

Time does not permit me to retell the familiar story of the growth of the Royal Society out of the union of those two groups of gifted amateurs known as the Invisible College of Boyle and the Philosophical Society of Oxford, or to insist on their indebtedness to the pioneer effort of Sir Thomas Gresham in the foundation of his College in 1575. The transition from a group to a society is something more than the passage from a coterie without a name to a coterie with a name: it is the first step towards the transference of an exclusive possession of the few to the participation of the many. The history of British Medicine is punctuated with informal groupings of fellow workers, such as those of William Gilbert, Glisson, and Erasmus Darwin, for the tendency to cohere is an instinct of the human herd. Such groupings become a society in name when they adopt a formal constitution, but they do not become a society in spirit until the evangelist spirit animates and inspires them to propagate knowledge beyond the narrow confines of their own community or to enlarge the confines by an extension of membership. This evangelist spirit was dominant in the early years of the Royal Society, side by side with its primary purpose of stimulating the creation of new discoveries. At first the work of the meetings consisted mainly in the exhibition of experiments by members and the reproduction of experiments already made by other scientific workers, together with the reading of papers. Besides discussion of experiments shown, a feature was the devising of fresh experiments to be carried out elsewhere. Great pains were bestowed on keeping in touch with work in other countries by an organized system of correspondence with foreign scientific workers, whose letters were duly communicated to the society. Abstracts of important articles in foreign journals were made and read, so that the purview of the society was international. Further, the society took care, by the publication of transactions, to communicate its own work to other countries, as the French *Journal des Scavans* had begun to do for Colbert's scientific coterie three months previously ; and in taking upon itself the publication of treatises the society was willing to assume the paternity of Newton's *Principia*. Medicine, or rather the embryo sciences out of which medical science was to arise, received generous treatment at the hands of the society, for two of its eight constituent committees, the anatomical and the chemical, were entirely in the hands of physicians, who enjoyed there facilities not to be found in the College of Physicians.

So the Royal Society led the way in Great Britain in promoting the exchange of views among its members by means of discussion and in the publication of transactions which, both in what they received and in what they gave, looked beyond the narrow confines of their own country, and both these features have figured in many of their descendant medical societies.

THE FIRST MEDICAL SOCIETIES IN EDINBURGH AND LONDON

So far as corporate action for the progress of medicine went, the Royal Society and the Royal College of Physicians held the field until 1731. In that year there came into existence in Edinburgh the first exclusively medical society in the modern sense. The preface to the first volume of its *Transactions* leaves no doubt as to the reasons for its foundation, for these are explicitly stated to have been that the constitution of the Royal Society did not allow it to insert in its *Transactions* several things that a plan calculated for the improvement of physic would easily admit, and, further, the belief is expressed that a collection of observations wholly relative to medicine would be the most effectual way of improving physic. It was not that medicine had been found to be a bad stable companion, but only that she could go better in single harness. The change was momentous, for it involved not only the segregation of medicine from the general body of science, but the handing over of its future to those who were not primarily concerned with scientific research ; and the consequence of this was inevitable, that the diffusion of knowledge, and not its creation, became the prime purpose of medical societies. That Scotland should have led the way in the development of the modern medical society is due to the fact that it was the first—inspired by the example of the Dutch—to organize, in 1725, a medical school of practical clinical teaching, and the founders of this society were those teachers of the school who desired that their voices should be heard beyond the four walls of the Edinburgh School of Medicine. The sole purpose of this society was the publication of medical papers, and there was no provision for reading or discussing them before the society.

In 1752 London followed suit in constituting its first medical society, and here again we must admit direct Scottish influence, for Fothergill, its founder, though a Yorkshireman, had received his academic training in medicine in Edinburgh, and had been a member of its second medical society. The London society limited itself to the publication of papers, and like its Scottish prototype rested on a narrow basis of membership of a few hospital physicians and surgeons. Each society was short-lived in its original form, for the Scottish society, by reversing the process of evolution, became first the Philosophical Society of Edinburgh by the inclusion of philosophy and literature, and later, in 1783, the Royal Society of Edinburgh. In this very same year the English society died a natural death, that not even the quickening influence of an annual banquet could stave off, for it had not been granted the faculty of making the dry bones of medicine live, without the vivifying guidance of Fothergill and William Hunter, who had been its mainstays. Maybe, too, its proclaimed purpose of excluding " whatever has rather a tendency to display the parts and erudition of the writer than to advance medical knowledge," led to a dearth of papers. This society, by its example, stimulated a group of Fellows of the College of Physicians in 1767, under the leadership of Heberden, to meet and read papers, which they issued in the form of *Medical Transactions* ; but this effort to project the College along the lines laid down for it by Harvey flickered out with the publication of the last volume in 1820. One admirable suggestion in the preface to the first volume may still be practised with advantage: " It is to be wished," says the author, " that writers would not confine themselves to relate only their successful practice. A physician of great experience might write a very useful paper, if he would have the courage to give an account of such methods of cure only as he had found to be ineffectual or hurtful." This hushing up of mistakes and failures unhappily extends beyond writers, and is an almost universal feature of hospital teaching, to the very great impediment of the growth of clinical knowledge.

THE ROYAL MEDICAL SOCIETY OF EDINBURGH

In tracing the expansion of the functions of medical societies, we must again look north to Edinburgh, where in 1734 a few students had banded themselves together for mutual assistance in their studies ; Fothergill joined them in 1735. By 1737 they had formally organized themselves into a society, which, growing from strength to strength, built itself a hall, and in 1778 became the Royal Medical Society of Edinburgh. This society marked a definite advance on its predecessor, for it had formal meetings, at which papers were read and discussed, but it

maintained at first the tradition of exclusive membership. Being at the outset a students' medical society, it gives Scotland the claim to have anticipated by many years the formation of the first students' society in London, the Physical Society of Guy's ; that was not born till 1771.

THE MEDICAL SOCIETY OF LONDON

For the first far-reaching democratization of medical societies we must look to the foundation of the Medical Society of London by Lettsom in 1773. To Lettsom is due the credit of giving actuality to an idea, but beyond all question the society was the natural product of the professional circumstances of the time. Both Fothergill and Lettsom were licentiates of the Royal College of Physicians, and each had winced under the stigma of exclusion from the Fellowship, which was the virtual monopoly of Oxford and Cambridge graduates who were members of the Church of England. Fothergill had taken an active part in the struggle that was fought out between the College and its licentiates, not only in the law courts, but with a show of violence on the floor of the College itself. Now Lettsom sought to sap the very foundations of the citadel of exclusivenesss by setting up beside it a rival institution, as similar as he could make it in constitution, and as dissimilar in its professional spirit. One cannot fail to see, in its president, treasurer, registrar, librarian, council, library, and museum ; in the language and ceremonial mode of admission of Fellows ; in the annual oration, and much else, where Lettsom looked for his model. From the beginning this society possessed a meeting house furnished with a library, which Lettsom enriched greatly at his death. But there the resemblance ended, for Lettsom saw to it from the first that his society was broad-based on the enfranchisement of general practitioners on the same footing as physicians and surgeons. Lettsom's foundation seems to have served his purpose, for in 1782 a scheme was mooted for the foundation of a rival College of Physicians, to which the Royal College responded two years later by relaxing so far as to admit two rebel licentiates to its Fellowship.

THE MEDICAL AND CHIRURGICAL SOCIETY

With this democratic society in the field, it may be a matter of surprise that the Medical and Chirurgical Society should have come into existence in 1805. It is commonly alleged that this society was founded owing to dissatisfaction with the protracted presidency of James Sims over the Medical Society. I find it hard to believe that our robust ancestors of one hundred and thirty years ago were unequal to the task of unseating a senile president, and I find a far more convincing explanation in the professional circumstances of the time. The fact was that a young cuckoo had been hatched and had already become too large for the parent nest—namely, modern scientific surgery, brought to birth by John Hunter. The very change of name from "Medical" to "Medical and Chirurgical" tells its own tale, and the chief figure of the surgery of the day, Sir Astley Cooper, figures prominently among the seceders. A ripple had already appeared on the surface of the water in 1783, when John Hunter had established "A Society for the Improvement of Medical and Chirurgical Knowledge," the membership of which never exceeded twelve. Such an exclusive body was bound to go under in competition with its new democratic rival, and it died of inanition in 1818. Moreover, we must not forget that the Royal College of Surgeons had come into being five years previously, in 1800.

So if the birth of the first medical society in 1731 marks the severance of medicine from natural philosophy, and the birth of the Medical Society in 1773 marks the full democratization of medical societies, we may recognize in the birth of the Medical and Chirurgical Society in 1805 the emancipation of surgery from the mortmain of medicine.

MEDICAL SOCIETIES IN THE PROVINCES

Meantime another notable advance had been taking place in the spread of societies from their metropolitan homes to the provinces. Warrington had a medical society as early as 1770, but no provincial society of that century was so famous as the Gloucestershire Society, founded by Edward Jenner in 1788. The minute books of the Gloucestershire Society, in the handwriting of Jenner, are a treasured possession of the Royal College of Physicians, bequeathed to them by Sir William Osler, than whom no one in the whole history of medical societies did more to cement the social bond, by the charm of his personality, the catholicity of his friendship, and the inspiration of his enthusiasm as a crusader. In these manuscript pages may be found a living picture of a rural medical society of the day, but time forbids me to do more than reveal one gem from this treasure house. Rule XIII reads:

> "That as a principal part of the view of the Society is the mutual communication of knowledge, without fear, reserve or any other authority than that of Truth, no new member shall be admitted for these seven years to come whose age exceeds 40 years."

EVOLUTION OF MEDICAL SOCIETIES IN THE NINETEENTH CENTURY

I could have wished for time in which to unravel the tangled skein of fission and fusion by which the Medical and Chirurgical Society has become transformed into the Royal Society of Medicine, for therein lies a typical record of the evolution of medical societies in the nineteenth century ; I must restrict myself to a few outstanding features. The first quarter of the century, indeed almost the first half, was a period of static equilibrium, for surgery had now come into its own, and was intent more on its own internal development than on its external relations ; the process of decentralization within the metropolis, which gave birth to the Harveian Society, showed, however, that animation was only in suspense. In the second half of the century we find the growth of medicine and surgery asserting itself in an orgy of fission, out of which arose a succession of specialized societies, each engaged in the pursuit of its own limited ideal: the Medico-Psychological Association seems to have struck the first note in England in 1841. But though fission was the dominant note, fusion never passed entirely out of sight. Time and again we find overtures for reunion of the Medical with the Royal Medical and Chirurgical Society, and efforts of young seceders to re-establish relations with the parent body ; it remained, however, for the twentieth century to reconcile these antagonistic tendencies by a comprehensive scheme of federation. Of these specialist secessions, two are of particular interest. In 1846 the Pathological Society gave expression by its foundation to the feeling that existing societies paid inadequate attention to pathological subjects. It was indeed the case that until its foundation, in a period when the intensive study of morbid anatomy had become a central feature of medicine, provision for the exhibition of morbid specimens existed only in name ; and in 1850, when the Pathological Society was seeking shelter beneath the roof it had recently deserted, the reply of the council of the parent society was that the exhibition of many recent specimens would probably create a nuisance.

So again, in 1867, the Clinical Society came into being as a result of the belief that the parent society cultivated too little the practical aspects of medicine and surgery, but expected its members to extract nutriment from a dry diet of papers. Yet this young society was content for a decade to talk about cases instead of exhibiting them, and it was not till 1879 that it formulated regulations for the exhibition of living cases, and these seem to have borne no fruit until 1882. A lesson might have been learned from the Medical Society, which was showing cases at its meetings as early as 1861.

CONTRIBUTION OF MEDICAL SOCIETIES TO MEDICAL KNOWLEDGE

In the contribution of medical societies to the advancement of medical knowledge we must look for no harvest of great discoveries ; their function is rather to afford a meeting place for the mutual exchange of everyday ideas. They do afford the opportunity of advancing or of receiving new ideas, of submitting them to criticism and correction, and of purging thereby the dross from the ore, and in this intercourse of fertile minds new conceptions will certainly be engendered. They do provide facilities for intercommunication to every type of practitioner, and one lesson of Jenner's life seems to be that even in the isolation of a country practice, amid the hourly demands of a toilsome calling, it is possible, with the aid of societies and interchange of ideas with those more fortunately situated, as John Hunter was, to keep the mind alive to every new source of information, and even to carry out original investigations in many branches of medicine, biology, and natural history. The modern development of libraries has brought wide facilities at a trifling cost to every practitioner's door, and, along with the medical journals, has rendered easy communion with the great minds of the present as well as of the past, both in this country and beyond the sea. Societies, too, have been important agents in promoting among medical men that feeling of good-fellowship that is essential for fruitful co-operation ; men's minds are massaged by rubbing against each other, and they rub off their angles by mutual attrition. In this, conviviality has played its part, however humiliating it may be to reflect that the tiger in man needs ever to be appeased by the prospect or retrospect of a meal. La Rochefoucauld has said that nothing is so bad as we imagine it to be, and he might well have added " nobody." Few of us but are aware of some personal prejudice, founded on no better grounds than gossip or misunderstanding, melting like snow in the warmth of personal intercourse.

DANGER OF STAGNATION

Anyone who studies the domestic history of medical societies cannot fail to be struck with one circumstance. Time and again a new need has arisen, but the dead hand of inertia has prevailed, and no step is taken to meet the new need ; then fission takes place, and a fresh society emerges—often out of the very vitals of the parent society and to its detriment. Why is it that societies tend to lose responsiveness to their environment? Is it that their official administration has in the past been far too much in the hands of the older members? Were Harvey and Jenner and Osler right in believing that 40 years is apt to be quite as critical an age in the lives of men as it is alleged to be in women's valuation of *their* lives? If so, would it not be well that every society should have a regulation that at least one-half of its governing body should be under 40 years of age? That is a question to which I leave each one to make his own answer.

MEDICAL EXAMINATION OF IMMIGRANTS TO CANADA

We have received from Dr. J. D. Pagé, Chief of the Immigration Medical Service of Canada, advance copies of the following paragraphs, which his Department proposes to include in its *Instructions to Medical Officers*. They are addressed particularly to medical practitioners in the British Isles, who, under a roster scheme, examine prospective Canada-bound emigrants.

INFORMATION FOR ROSTER DOCTORS

With a few exceptions, medical examination of immigrants to Canada prior to embarkation was made compulsory in February, 1928. The term " immigrant " includes all persons who are travelling to Canada to settle there, regardless of the class of travel. Transmigrants, bona fide tourists, visitors for business or pleasure, Canadian residents or citizens by birth or domicile, *do not* require medical examination. This examination is primarily to advise the Department of Immigration as to the physical and mental fitness of the applicant, and, secondarily, to protect the interests of the intending immigrant as well as to protect the travelling public and the new community.

In enlisting the services of the local medical practitioner in the examination of prospective British immigrants to Canada, the Canadian Government feels that the Dominion's interests will be served best when the British examiner best serves the interests of his patient, who in this instance will also be the prospective migrant. Years of experience and observation have convinced medical officers of the Canadian Department of National Health that it is altogether unfair and unkind to precipitate into either the general labour market or the pioneering life of this new country individuals from the comparatively sheltered life in the British Isles who are constitutionally below a high average with regard to either physical or mental reserve power.

Perhaps not greatly in any one instance, but certainly in the sum total, such conditions as indicated below constitute serious difficulties for all newcomers during their first few months in Canada, and in some cases prove to be insurmountable—for example, marked change in climate, including, by comparison, extremes in temperature, excessive amount of sunshine, high altitude, thin, dry atmosphere, all of which are trying on the nervous system. Comparative isolation in outlying districts, change in money standard, food, cooking, and dwellings. Complete change in local interests and details regarding social life and activities. Considerable difference in customs and routine methods of doing work and business generally, all tending to a period of home-sickness of such severity as to be really disabling.

Disappointment may arise, too, from the erroneous idea that less work will produce a better living in the new country, when as a matter of fact Canada offers better returns only in exchange for more, and often harder, work than is available in the Mother Country. Moreover, the release from the restrictions of a crowded community afford an apparent freedom, and the release from the restraining influences of the home environment is often too much for those persons lacking in self-control or moral responsibility.

It is of particular importance, therefore, in examining prospective emigrants to detect not only the obvious physical or mental defective, but also those cases on the borderline between sanity and insanity—individuals who possess defective judgement, instability of the nervous system, or who are emotionally hypersensitive ; also those who at some time previous have been insane. As well, too, those who suffer from epilepsy, latent syphilis, chronic or recurrent conditions such as tuberculosis, rheumatism, bronchitis, renal, gastric, or arterial disease, skin diseases producing either disability or loathsome appearance.

Certain of the conditions mentioned may produce very few signs or symptoms, and fail to attract attention while

the individual is living a normal routine life in his native environment. Too often, however, these conditions prove to be the undoing of the new settler when subjected to the stress and strain of accommodating himself to an entirely different environment.

On account of the sparsity of Canada's population compared to her vast area, and the tremendous cost *per capita* of developing and maintaining public utilities and institutions, the immigration laws have provided for the rejection, at port of landing, of physically or mentally defective persons seeking admission to the country, or, if landed, the deportation to his native land of any immigrant who before qualifying for full citizenship becomes a charge upon public funds. The position of such a deportee upon returning to his homeland is usually far less satisfactory than before going abroad, for in all probability he will have no immediate employment and no home, and his physical, mental, and financial resources will be lessened, to say the least. Much of such hardship is preventable by means of careful and conscientious medical examination of prospective migrants before giving up their employment or disposing of their homes.

The Canadian Government feels that a close and friendly co-operation between the British medical man making the actual examination of British subjects and the Canadian medical officer specially trained in immigration medical work, will, on the one hand, mitigate suffering and hardship on the part of the immigrant, so far as is humanly possible ; and, on the other hand, relieve the financial burden on Canadian public funds resulting from the physical or mental collapse of new settlers. In such co-operative scheme the British practitioner's responsibility is purely medical ; that is, a careful examination of the prospective emigrant's physical and mental condition, together with an investigation of his medical history ; the submission of a report of the medical examiner's findings, with an expression of opinion as to diagnosis and prognosis regarding any abnormalities noted, having in mind that the patient is planning to migrate to a new country. With such a pen picture of the patient as above indicated before him, the Canadian medical officer, with his knowledge of Canadian conditions and special training in immigration work, would be in a position to express a reliable and intelligent opinion, from a medical viewpoint, as to the advisability of the applicant's migration to Canada.

ROYAL MEDICAL BENEVOLENT FUND

At a recent meeting of the committee of the Royal Medical Benevolent Fund, fifty-nine grants were made, amounting to £1,341. The following are particulars of a few of the cases helped.

Dr. X, aged **65**, married. At the special request of the honorary secretary of the local British Medical Association Division, an emergency grant of **£10** was given, also an annual grant of **£40**, payable in four instalments. Owing to being crippled with rheumatism, the applicant has been unable to carry out his professional duties, and he and his wife were known to be nearly destitute, and suffering from lack of food.

Widow, aged **78**, of M.R.C.S. When her husband died in **1911** the widow went to live with her only son, who had a dental practice. When the son married ten years ago his mother continued to live with him, as she had no home of her own nor the means to support one. The son died three weeks ago, and the applicant was absolutely stranded ; the furniture and little else went to his widow. The applicant suffers much from chronic asthma, and at her age it is impossible for her to follow any remunerative occupation. A month ago the applicant was living comfortably with her son and daughter-in-law, enjoying the ordinary benefits of home life ; now she has to face the difficult problem of fending for herself on an income of under **£50**. The Fund voted an annual grant of **£26**, and is endeavouring to obtain further help from other societies for this very sad case.

Widow, aged **70**, of M.R.C.S. The applicant has maintained herself since **1899** by working as a companion-housekeeper. Her employer died in August, **1930**. She is now too old to obtain other employment, and her income consists of the old age pension of **£26** and a grant of **£25** from the Indigent Gentlewomen's Society, making **£51**. The applicant is an educated and cultured woman, feeling her position very acutely. It was only with a very great deal of persuasion that she would consent to an application being made to the committee. Fund voted **£26**.

Daughters, aged **76** and **69**, of M.R.C.S. These two sisters, who, on the death of their father in **1871**, were left comfortably off, now, through the reduction of dividends, were found to be sharing a total income of **£89** a year, out of which they have to pay rates of **£12**. Fund voted annual grant of **£20** to each sister.

Dr. Z, aged **75**, married. Applicant gave up practice in **1927** to undergo a serious abdominal operation, from which he made a good recovery. Since then he has been doing locumtenent work from time to time. His last employment was for thirteen months, which ended in September, **1930**. Since then he has been unable to find work, and has been drawing on his capital, which is now reduced to **£45**. His wife was trying to find employment, but recently met with an accident, and is in hospital. Fund voted **£40**.

Subscriptions and donations are very urgently needed in order that the activities of the Fund may be continued and the applicants given the help they need. Cheques should be forwarded to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, Tavistock House (North), Tavistock Square, W.C.1.

Scotland

HEALTH OF SCOTLAND

The second annual report of the Department of Health for Scotland,[1] dealing with the year 1930, draws attention to the fact that the period under review was a particularly difficult one, owing to the continuance of unemployment and the great changes introduced in local government. In consequence of the Unemployment Insurance Act, 1930, the number of able-bodied unemployed chargeable to Poor Law authorities was reduced by about 50 per cent. ; the number on May 15th, 1930, being 181,759 (37 per 1,000 of population) compared with 210,956 at the same date in the previous year. Despite extension in the few schemes available for training and work the Department considers that there is urgent need to amend the Scottish Poor Law in order to provide for an alternative to unconditional relief in money. As far as the medical services are concerned, the year has been one of adjustment rather than of development, the local authorities having been occupied largely with problems of organization. Various suggestions are made in the report as to the lines on which future progress of a unified health service might be carried out.

Sanitation and Food Supply

A questionary was issued by the Department in August requesting particulars of water supplies in burghs and districts. The replies indicated that in many districts there was no adequate margin for future extension, while in some areas no provision had been made for filtering water obtained from cultivated land. A Reservoir (Safety Provisions) Act was passed during the year with respect to liability for damage caused by escape of water ; periodical inspections of reservoirs will take place at intervals of not more than ten years. Towards the end of the year the Department received the first report of the Scottish Advisory Committee on the prevention of river pollution, dealing with the River Tweed and its tributaries. The committee recommended the provision of sewage purification works for treating domestic sewage and trade wastes at various towns situated near the river, and the Department is urging the local authorities to take the necessary

[1] Cmd. 3860. Edinburgh: H.M. Stationery Office. (3s. 6d. net.)

action. The committee now proposes to direct its attention to the River Leven (Fife). Last year the Department investigated a complaint regarding mosquitos in the Trossachs district. These were found to be culicine mosquitos, incapable of conveying malaria, but becoming a nuisance in the summer months owing to their large numbers ; the Department recommended that the area of their propagation should be drained.

In regard to food supply, attention is drawn to the fact that during 1930 two events gave a great impetus to public interest in the value of milk. One was the passing of the Education (Scotland) Act, 1930, which conferred power on education authorities to supply certified milk to school children, and the other was the investigation into the effect on growth of a daily ration of milk. This experiment was conducted in sixty-seven Lanarkshire schools upon 20,000 children, of whom 10,000 received three-quarters of a pint of Grade A milk for four months, 10,000 acting as controls. The conclusion was reached that no other food product possessed the intrinsic value of milk as a growth factor in nutrition. Improvement is recorded in the condition of town byres, and there is evidence of a continued transfer of milk production to landward areas. The Department decided that if veterinary inspection was to achieve its purpose, three inspections a year in landward areas and four inspections in burghs should be provided by local authorities. The figures obtained from the examination of 264,355 dairy cattle during 1929 showed that 0.35 per cent. were tuberculous, but it is believed that with more frequent inspection, a higher rate of tuberculosis would be disclosed. The report states that the proportion of tuberculous cows endangering the milk supply is slightly over 1 per cent., and urges that an increased demand by the public for tubercle-free milk would help towards the eradication of tuberculosis from dairy herds by producers themselves. There are now sixty-four certified herds and seventy-six Grade A (tuberculin-tested) herds licensed by local authorities under the Milk Order (Scotland), 1930, the number of animals in these herds being about 5,800.

Maternity Service and Child Welfare

The local authorities in Scotland for maternity service and child welfare are now the town and county councils. At the end of 1930 these employed 122 whole-time health visitors and 478 part-time visitors, of whom the greater number were district nurses. The maternal mortality rate in Scotland during 1930 was 7.0 per 1,000 births, of which 2.3 per 1,000 were attributed to puerperal sepsis. These rates have in recent years shown on the whole a tendency to increase. Attention is drawn to the reports issued in 1930 from the health departments of Glasgow and Aberdeen dealing with this subject, and the necessity is emphasized for further investigation as to its causes. During 1929, of the total births in Scotland, about one-half were attended by doctors, one-third by midwives, and one-sixth were supervised in maternity institutions. The proportion of expectant mothers who sought ante-natal advice at clinics amounted in Aberdeen to 40 per cent., in Edinburgh to 50 per cent., and in Glasgow to 60 per cent. The number of practising midwives in Scotland at March 31st, 1931, was approximately 4,900, representing an increase of 150 on the number at the same date in the previous year. The proportion of births attended by midwives has shown a tendency to decrease in recent years—for example, in 1922 midwives attended 37 per cent. of births, while in 1929 the proportion was 33 per cent. The supply of midwives in Scotland is regarded as more than adequate, but the Department is endeavouring by means of grants to ensure a higher standard of skill by encouraging trained nurses to undertake midwifery training. Infant mortality continues to decrease ; the number of children under 1 year who died in Scotland represented a mortality rate of 83.0 per 1,000 births—the lowest yet recorded except in 1923, when the rate was 78.9. Reports of medical officers of health for 1929 revealed that in areas where child welfare schemes were in operation, 80 per cent. of the children born during the year were visited by health workers. The number of deaths among children between the ages of 1 and 5 represented a mortality rate of 10 per 1,000, as compared with 11.9 in the preceding year. Of the children in this age group, about a quarter come under health supervision provided by child welfare schemes. This proportion is not regarded as satisfactory, and the Department has emphasized the necessity for an improved service of health supervision for the pre-school child in circulars addressed to local authorities. The suggestions are made that parents should be educated in regard to the need for regular health supervision, that existing services for visitation, maternity, and child welfare centres should be extended, and that the school medical service should provide for medical inspection of pre-school children.

School Health Administration

Prior to the operation of the Local Government (Scotland) Act, 1929, arrangements existed in twenty-two counties whereby the public health and school medical services were co-ordinated, but now, for the first time, school health administration has become part of the general public health administration by local authorities. The medical personnel employed in this service at present includes 36 school medical officers, 67 assistant school medical officers, about 50 part-time local practitioners engaged in inspection and treatment, 44 whole-time and 39 part-time school dentists, 72 part-time specialists for the eye, nose, throat, skin, etc., and 694 nurses, including 176 engaged in whole-time work. The system of medical inspection is based upon a careful and detailed examination of generally three age groups. Children aged 5, 9, and 12 years respectively are examined in the primary schools, also children aged 16 years in the secondary schools. This work entails much more than systematic medical inspection, because it involves, for example, the provision of clothing for necessitous children, and the selection of suitable cases for convalescent and holiday institutions. Parents, it is stated, should be encouraged to attend the medical inspection of their children in the schools. The number of children of the selected age groups medically examined during the year was 263,334, while re-examinations amounted to 82,634, and special examinations to 146,332, making a total of 492,300 out of 741,801 children in average attendance at school. Details are given in the report of the percentages of children found defective in various respects ; 2.3 per cent. had anaemia, 9.3 per cent. had enlarged cervical glands, 56.9 per cent. were found with one to four teeth decayed, 14.3 per cent. had enlarged tonsils, 5.4 per cent. had vision, and the nutrition of 5.9 per cent. was below the average. According to the statistical data for these defects there appears to be a general and steady improvement. The report concludes that provision for the treatment of the common ailments of children is satisfactory in populous areas, but that more extensive arrangements must be made in rural districts, especially for dental treatment. Attention is directed to the special classes or schools for children with ringworm and allied conditions that have been established in Edinburgh and Aberdeen. Further reference to the report will be made in a later issue.

Contributory System for Voluntary Hospitals

An address on the future of voluntary hospitals was delivered by Sir Robert Bolam on May 29th in the City Chambers, Edinburgh, under the presidency of Lord Provost Whitson. Sir Robert indicated that the voluntary

hospitals had now come to serve about 80 per cent. of the community belonging to the working class, but that only about 4 per cent. of their patients belonged to the Poor Law class, for which the voluntary hospitals had originally been instituted. While the class of the self-employer in small individual businesses provided some 4 per cent. of their patients, those who in a financial sense constituted the upper and middle classes, amounting to about 12 per cent. of the community, were not provided for by the hospitals. A point had been reached where middle-class people could not command medical treatment outside hospitals which was equal to that provided in hospitals organized on a system of team work with specialists in different departments who could assist one another, and provided with expensive equipment for diagnosis and treatment. On the other hand, hospitals were greatly handicapped at present by the necessity of applying part of the revenue of their capital for current expenditure. He suggested that in the Edinburgh area, with a population of some 1,269,000, there were approximately 400,000 persons insured under the National Health Insurance Act, who, by subscribing 1d. per £ of their weekly wage, could provide some £200,000 yearly to finance the hospitals. Under such a contributory scheme the particular hospital in which a member was treated would be reimbursed for the work done. He instanced the experiment that was being conducted at Newcastle along these lines by which anyone with an income of less than £250 a year could have the benefit of a hospital service at 3 guineas per week. An important point in this connexion was that the medical profession could not afford to go on giving hospital service continuously on the present gratuitous system. The financial recognition need not be much so far as the individual patient was concerned; out of the charge of 3 guineas, 2s. daily was allotted to medical treatment and 7s. daily for the maintenance of the patient in hospital.

Elphinstone Celebration at Aberdeen

A four days' celebration of the five-hundredth anniversary of the birth of Bishop Elphinstone began on June 4th at Aberdeen. William Elphinstone, who was Bishop of Aberdeen and Chancellor of Scotland, founded King's College in the town of Old Aberdeen in the year 1494, the College being completed in 1505. It is noteworthy that one of the teaching staff from the beginning was a mediciner. This was the first university recognition of medicine in Great Britain, the appointment of the mediciner at Aberdeen preceding the appointment of a professor of medicine at Oxford and Cambridge by a generation. The leading part in the ceremonies at the dedication of the monument to Bishop Elphinstone and the opening of the Elphinstone Hall was taken by Lord Meston, Chancellor of the University. The memorial consists of a life-size recumbent figure of Bishop Elphinstone, executed in bronze and placed on a massive base of black marble. In his address Lord Meston gave a historical account of the period in which Bishop Elphinstone lived, and intimated that the cost of the memorial hall had been approximately £35,000.

Glasgow Home for Incurables

The Dowager Duchess of Montrose on May 30th opened a new annexe at the Glasgow Home for Incurables, Broomhill. The new building, which is of three stories, contains a recreation room, a new women's ward, and an electrical treatment room with dressing rooms and dispensary. Mr. James Macfarlane, LL.D., presided at the opening ceremony, and recalled how the Duchess of Montrose had organized a bazaar in aid of this home during the war, the proceeds of which had amounted to £40,000. After the ceremony, there was an exhibition of handicraft work made by the patients.

England and Wales

London University New Buildings

The Court of the University of London has appointed Mr. Charles Holden, F.R.I.B.A., senior partner of the firm of Messrs. Adams, Holden, and Pearson, to be the architect of the new buildings which the University proposes to erect on its site in Bloomsbury, on the north side of the British Museum. The choice of Mr. Holden has been made after careful deliberation and exhaustive inquiries, and the procedure followed by the Court has included visits to various parts of the country to inspect the outstanding works of architects whose names were to be considered. Mr. Holden has had experience of buildings of a university character, among which may be mentioned the new buildings of King's College of Household and Social Science on Campden Hill. Probably his best-known work of recent years is the new Underground building at St. James's Park, for which he was awarded, by the Royal Institute of British Architects, the London architectural medal for 1929. The Court believes that its appointment of Mr. Holden as the architect of the University's new buildings will meet with the approval both of members of the architectural profession and of the general public. Mr. Holden's task will be a large one. When building operations begin the site will be an island one of over ten acres, bounded on the south by Montague Place, on the west by Malet Street, on the east by Russell Square and Woburn Square, and on the north by Gordon Square and Byng Place. Among the first buildings to be erected will be the Administrative Offices, the University Hall, and the University Library, premises for the Officers' Training Corps, and buildings for the Institute of Historical Research and the Courtauld Institute of Art. To these will in all probability be added the London Day Training College, and the Court's programme provisionally includes accommodation for Birkbeck College, the School of Oriental Studies, and the University Students' Union. Space will also be reserved for other purposes, among which residential accommodation for students, a faculty club, and residential chambers for staff will be considered. This building programme will of necessity have to be undertaken in stages, and will take many years to complete, but, with a view to ensuring that, when the work is ended, all the buildings will form part of a dignified and harmonious scheme, Mr. Holden is being asked to prepare at once a design for the whole of the site.

Cancer Research in Yorkshire

The fifth annual report of the Yorkshire Council of the British Empire Cancer Campaign covers the twelve months ending March 31st, and reveals the contributions made to progress in this respect by that county. Special attention is drawn to the researches conducted at the Universities of Leeds and Sheffield. Professor R. D. Passey, discussing the work done at Leeds by Dr. Young on experimental hyperplasia, mentions that evidence has been obtained that the onset of epithelial hyperplasia conforms to the same principles of physical chemistry as those which regulate the precipitation of negatively charged colloids. Such precipitation would appear to be an essential phase in the sequence of biological changes which culminate in cell division, preceding, indeed, the earliest alteration which can be recognized microscopically—namely, swelling of the cells. Dr. Berenblum has advanced further with his study of the anticarcinogenic action of dichlorodiethyl sulphide (mustard gas). His experiments fail to support the suggestion that mechanical irritation normally plays an important part in the production of tar tumours, and Dr. Bonser, following lines

parallel with those of Dr. Berenblum, has shown that four Scottish blast-furnace tars, and one English tar, possess carcinogenic properties, though not in so high a degree as one would expect to find in ordinary gas tar. The question of heredity is still being investigated, and there seems to be a certain correlation between the date of appearance of warts in parent and offspring. The cancer-producing powers of radium are being tested experimentally, and so far no support has been obtained for the view that radium has growth-promoting properties dissociated from concomitant injuries. At Sheffield Professor E. Mellanby has continued the observation of the metabolic changes of cancerous growth, and especially the lactic acid production, which is generally regarded as indicative of the main energy changes of such tissues. It has been found that phosphatase, unlike diastase, does not influence the lactic acid production of cancer, a fact which is in accordance with the view that phosphates play no part in cancer glycolysis. It has become increasingly clear that the problem of cancer, in so far as it is related to nutrition, is quite different from the problem of many pathological conditions which are influenced by nutritional factors. Certain foods are known which prevent in specific ways the development of hyperplastic changes in growing tissues. These foods do not inhibit the growth of cancer in animals, however, but actually, in many cases, increase the rate of growth when the specific carcinogenic agent is present. So far there is no evidence that suitably selected food will prevent cancerous growths from developing when the specific stimulus is present. Propaganda lectures to medical practitioners, the public, and, for the first time, to nurses, have been given in Yorkshire during the year under review, and literature has been circulated.

Development in Relation to Heredity

The Cavendish Lecture, delivered to the West London Medico-Chirurgical Society at Kensington Town Hall on June 5th by Professor Julian Huxley, was a fascinating discourse on biological problems. Professor Huxley began by pointing out the apparent anomaly that the minute particles, so to speak, which constitute the hereditary outfit and determine the shape of the head, the colour of the eyes, and so forth, were scattered in a mosaic, without relation to one another; while, on the other hand, development was always an extremely orderly process, following a unity of its own. How did the unconnected units of hereditary endowment become translated into an orderly process of development? All recent work, both on fossil forms and on closely allied species or sub-species, said Professor Huxley, showed that while the original conception that evolution consisted of very gradual steps, obeying definite laws, was correct, yet, coincidently with this, there were changes which took place in jumps. All the higher organisms began as a single fertilized egg; and it was now known that in the early stages, with the division of the egg into a number of cells, each one of the cells got the same outfit of chromosomes. How, then, did differentiation occur during development? The explanation appeared to be that the factors which elicited the difference between different regions of the body were, in the first instance, always outside the egg itself. Bilateral symmetry, for example, was determined by an agent outside the egg—namely, the entry of the sperm. An external agency imposed the primary axis of symmetry on the egg, and once this axis of symmetry was imposed there seemed to be a physiological gradient. Professor Huxley, with the aid of lantern slides, illustrated some recent and older work in experimental embryology, such as that in which the immersion of the embryo in slightly toxic solutions had caused the development of monstrosities. One illustration concerned the gills of the salamander larvae, which evidenced a compensatory adjustment to oxygen in the environment; with excess of oxygen the gills shrank almost to nothing, and with deficiency of it they expanded to a very great extent, so as to present as wide a surface to the available oxygen as possible. The stresses and strains to which the organism was subject during development accounted for much differentiation in structure and function. One did not need to ascribe to natural selection or heredity, for example, the adjustment of the tendons to the weight and stress they had to carry. The ductless glands Professor Huxley described as a great labour-saving device from the point of view of heredity, because one quantitative change in one ductless gland could produce a great many complicated changes all over the body. Professor Huxley also discussed different physical types in human beings—the asthenic, the athletic, and so on—in relation to temperament. How unthinkable was Dr. Johnson's physical endowment with the fanatical mentality of Calvin. No one could imagine Don Quixote as fat or Sancho Panza as thin. The lecturer went on to show how differences of proportion were due in the long run to differential growth rates. He instanced the claw of the fiddler crab, which grew at a rate greatly in excess of the body, the enormous jaw of the male stag-beetle, and the antlers of forest deer. Graded effects were represented by the beautiful involuted shell of the nautilus, and the spiral horn of the rhinoceros and other mammals, due entirely to the fact that the rate of growth on one side was different from what it was on the other, otherwise the horn would be a mere cone. It was this graded change which had transformed a creature originally something like an ox into the giraffe. Professor Huxley concluded by saying that the biologist to-day was able to link up different aspects of his subject and to provide food for further thought by those who were studying the development of the finished product in the human organism. Biology hitherto had proceeded in watertight compartments—comparative anatomy, physiology, a study of heredity, and development, and so on—but the time was now coming when these various studies were beginning to be linked up in the same way as the different branches of physical and chemical science began to link up at the end of last century.

Child Guidance

The second report of the children's clinic at "The Quest," 85, Clarendon Road, W.11, indicates the progress made during the twelve months to September 30th, 1930, in restoring to mental and physical health children suffering from neuroses, by enabling them to face their own difficulties and work out within themselves the solution of their conflicts. The first report was referred to in the *Journal* of January 25th, 1930 (p. 167). In spite of inadequate income the work of the clinic grew apace in the second year, and during the last six months there was built up an administrative machinery and a system of recording and analysing the results. A scheme of medico-sociological research is being devised for tracing the causes of neurosis in children. Lack of accommodation has prevented children from being received on more than two afternoons a week; even so, much difficulty has been encountered in providing suitable conditions for the clinical investigations and treatment. The Child Guidance Council has lent one of its social psychiatric workers to help on the social side of the clinic, and a formal training course has now been brought into being. A unified method of handling each case is set out, full scope being allowed for individual differences. The course covers one year of three terms; students are accepted who have already passed some

standard test in any recognized branch of training in medicine, teaching, social work, or welfare work. Practical work in psychology is supervised by the director of the clinic, the cases are summarized, and lectures and demonstrations are provided. The fee is 21 guineas for the year, payable 7 guineas a term in advance. Further particulars of this training course, as well as other information about the clinic, may be obtained from the secretary.

Correspondence

RADIUM: POSSIBLE EFFECT IN PROPHYLAXIS OF CANCER

SIR,—At the present time there are a considerable number of patients treated for small fibroids and menorrhagia at the menopause by means of radium. The radium is generally placed in the cervix and body of the uterus, and it will be of considerable interest to watch these cases and see if they all remain free from malignant disease of the uterus in after-life. It will, of course, require many years, and a great many cases, before any statistics worthy of the name can be collected. I would, however, ask through your columns that all practitioners take careful notes of any of their patients in whom this treatment has been carried out, so that at a later date large statistics may be available. If it should prove a prophylactic for carcinoma of the cervix it will be a very big step forward.—I am, etc.,

London, W.1, June 6th. MALCOLM DONALDSON.

MICROCEPHALY

SIR,—In his letter on microcephaly (*British Medical Journal*, June 6th) and its kindly reference to myself, Dr. Noel H. M. Burke correctly reflects my views on the association of microcephaly with amentia, and points to my departure from the hitherto more usual practice of regarding microcephaly as only one of several types of mental deficiency. The reasons for my conversion are, very briefly, as follows.

I know of no satisfactory methods by which a definite shape of head can be proved to be associated with either amentia or dementia. Circumferential tape measurements and the cephalic index have both been tried and found wanting, and there does not seem to be any satisfactory instrument which will do for the living head what the dioptrograph does for the skull. I am therefore unable to accept previous teaching that microcephaly as one of the types of mental deficiency depends far more on shape than on size.

On the other hand, size of head as recorded in accordance with the recommendations of the Anthropometric Committee of the British Association for the Advancement of Science, from which can be calculated the cubic capacity of brain and the results compared with the now known and well-established percentile figures for both sexes and all ages, is a new departure which gives positive and illuminating results, and even enables us at times to form some notion of the probable state of development of the individual's pyramidal and fusiform cortical cell layers.

In an examination of 1,391 unselected mentally deficient patients from a large Victorian Children's Hospital in Melbourne, I found that 62.2 per cent. were definitely microcephalic, whereas a check experiment on 8,533 normal public and State school children revealed only 19.5 per cent. to be of similar microcephalic dimensions.

Of 131 adult female defectives now under examination at Stoke Park Colony, all over 16 years old, with a mental ratio of not less than seven years and all feeble-minded, 88 cases, or more than 67 per cent., are at definitely microcephalic levels, and of these, 49 are so microcephalic as actually to fall below the zero percentile for their age and sex.

But macrocephaly is also associated with amentia, though to nothing like the same degree as microcephaly; but as it is impossible to enter here into this larger field I may content myself with a sentence from my report on mental deficiency in the State of Victoria (1929), which is confirmed by later experiences amongst English defectives. "This dispersal of the abnormal (mentally defective) cases away from the true means is also shown by the greater readings of the standard deviations, and thus both tables (that is, the mathematical true means and the percentiles) prove once more that the mentally abnormal tend to have abnormal heads, and the generalization is applicable to both sexes."

I have therefore been compelled to the conclusion that there is no particular shape of head associated with mental deficiency. But that two-thirds of all defectives are so small-headed as to be microcephalic, while another 25 per cent. are at abnormal macrocephalic levels, appears to me to be both true and proved.—I am, etc.,

Stoke Park Colony, June 8th. RICHARD J. A. BERRY.

OPERATION FOR CATARACT

SIR,—In your issue of June 6th (p. 1001) Dr. Traquair raises the question whether an operation for cataract in one eye, when the vision of the other is sufficiently good to enable the patient to carry on his work, is advisable or justifiable. In my opinion, when the sight of the cataractous eye is so defective as to be useless for ordinary visual purposes, but in the opinion of the surgeon is operable, the cataract should be removed by operation if the better eye shows that cataractous changes have already begun. My reason for this is that opacification of the lens of the better eye will probably increase, and it is advisable to prepare the more definitely cataractous eye for visual purposes in advance, and not to wait until the patient is reduced to a condition of visual impotency.

The designation of some cataracts as immature is frequently a misnomer. When the opacity is situated in the posterior cortex of the lens, leaving the rest of the lens almost clear, the cataract is often styled immature. Such a cataract interferes very greatly with visual acuity. It may, however, be removed entire by any of the various methods of operation without the slightest difficulty.

The question of driving a car after cataract operation depends not only on the visual acuity obtained with the cataract glasses, but also on the individual psychology of the patient.

Dr. Traquair's third point is: If a patient has had a successful operation performed on one eye, is any material advantage to be gained by operating on the other commensurate with the risks involved? In my opinion, if the cataract in the other eye is operable, there is very great advantage to be gained by successful operation. In most cases the patient regains binocular vision, and, what is of very great importance, restoration of his visual field. Even in cases of monocular cataract resulting from traumatism I am accustomed to advise operation in order to restore, as far as possible, the normal visual field, a matter of great importance to motorists.

There is little doubt in my mind that the most important cause of cataract is the long-continued presence of some form of focal sepsis. The careful search for such a focus, and its elimination, have often, in my hands, delayed the further development of such cataractous changes in the lenses as are likely to interfere with

vision (see *Westminster Hospital Reports*, vol. xx, 1929). The failure to look for possible sources of sepsis, which may be the roots of previously extracted teeth in an edentulous patient, is responsible for many unsuccessful cataract extractions. By carrying out this procedure and employing modern methods of local anaesthesia, the risks of a cataract operation, of which Dr. Traquair speaks, have been greatly diminished during the last few years.—I am, etc.,

London, W.1, June 8th. A. F. MACCALLAN.

SIR,—The letter by Dr. H. M. Traquair in your issue of June 6th in reference to the above is of considerable interest, and I think brings out the point that each case must be decided on its own merits, and that no hard-and-fast rule can be laid down as to the advisability of operation in cases of cataract where there is still useful vision in the other eye.

The patient, of course, generally expects to recover full single binocular vision after removal of the cataract. This, unfortunately, is an impossibility, as one can readily understand from a brief study of the optical principles involved ; so that if one does remove a cataract from one eye whilst the other eye has 6/18 vision or more, the patient is then faced with the choice of using either the " sound " eye or the operated eye with a correcting lens. He cannot use both together (if he wears his cataract lens) without getting diplopia, owing to the difference in the size of the retinal images. He will generally, as Dr. Traquair says, prefer to use the unoperated eye even though the other with a correcting lens may have the better vision.

One practical point, of great advantage in these days of fast-moving traffic, which I think should be considered when deciding for or against operation in cases of cataract where there is still useful vision on one side, is that while it cannot restore single binocular vision it does restore the normal field of vision for moving objects—thus enabling the patient to walk with much less risk in traffic.

I think the same point arises when one is considering whether to remove a cataract from the second eye subsequent to a successful operation on the first. If the patient is active and able to walk about, I think his chances of avoiding accident in the street are much increased by removing the second cataract. In this connexion I have heard it stated that there is more risk, other things being equal, in operating on the second eye than on the first, and I would be glad to know if this is a general experience, as it is contrary to my own.—I am, etc.,

Bournemouth, June 6th. DAVID HARDIE.

OBSTETRIC SHOCK

SIR,—The paper on obstetric shock by Professor Miles H. Phillips in the *Journal* of May 16th was so admirable and well reasoned that I hesitated to point out what to me appears a tiny flaw in it—the inconsistency of his opening assumption that " a fatal case of shock following a labour is a rare experience for any individual medical practitioner " with his conclusion as to " the grave danger caused by the use of chloroform." The latter phrase, torn from its context, does not quite represent the meaning of the paper ; but if chloroform were as active in the production of shock as Professor Phillips, on theoretical grounds, insists, obstetrical shock would be an occurrence familiar to most of us. In general practice the drug is still widely used.

What leads me into this discussion now is a desire to amplify certain factors which may bear upon the tragedies cited in detail by Professor Phillips (p. 837) and Dr. Peter McEwan (p. 955)—protracted labours, both, in which death took place hours after delivery, with the placenta still *in utero*—emotional shock or pituitrin being blamed or suspected as cause. Dr. F. G. Crookshank (p. 912) emphasizes the psychological aspect which modern obstetrics, for all its preoccupation with the affairs of expectant mothers, tends to ignore. The majority of women are obsessed with the idea that they will die in labour. Women have always felt so, and generally they are silent about it ; but their dread cannot nowadays be diminished by the publicity given to facts and figures concerning maternal mortality, the vivid definition of the risks of motherhood. For months they live under sentence ; but things reach a crisis in labour ; the woman is tortured with apprehension as well as racked with pain. Mental excitement and physical effort exhaust her nerve centres. If labour goes briskly forward she hopes again, but delays make her alert to every look and whisper—and modern obstetrics is, too often, a matter of " masterly inactivity " and looks and whispers. Professor Phillips says that the onset of shock is predisposed to by the use of chloroform " on two or more occasions during a labour—for example, for the induction of labour, or for a thorough examination in the earlier stages, and later on for the actual delivery or for repairs of lacerations "—and his words conjure up the disappointments and protraction of too many modern labours. Even when she awakes from the anaesthetic a woman may be disappointed. Consciousness that the placenta has not come away will engender dread. I am not advocating reckless intervention, but there is such a thing as reckless inaction, and a woman may easily reach exhaustion in efforts, hour after hour, alone or aided only by doses of pituitrin, to accomplish the impossible or the next-to-impossible. When she awakes from the anaesthetic the realization that her task is quite accomplished is one great antidote to obstetrical shock. Another, as Professor Phillips hints, is the support of a firm binder.—I am, etc.,

Belfast, June 1st. ROBERT WATSON.

BLOOD TRANSFUSION AND DAMAGED KIDNEYS

SIR,—I would like to express my appreciation of Dr. Arnold Osman's timely warning against blood transfusion when the kidneys are known to be damaged.[1] I have had to deal with a number of cases of blackwater fever, and the profound and progressive anaemia associated with haemoglobinuria tempts one to seek the aid of blood transfusion. My early impressions of this remedy would have persuaded me to hail it with enthusiasm, but further experience has brought enough wisdom to curtail my ardour. In a series of cases I have realized that the earlier in the disease the transfusion was given, the worse were the results. In the early acute stage, when there may be suppression of urine and jaundice, and marked toxaemia, I have found blood transfusion to be an utterly useless remedy—in fact, I am inclined to think it has made things worse. The anaemia becomes complete, the toxaemia more marked, the pulse weaker, the heart dilates rapidly, and death soon closes the scene. This is the type of case in which the renal damage is definite and extreme, and blood transfusion does exactly what it did for Dr. Osman's nephritis case.

On the other hand, given a blackwater case in which the albuminuria has disappeared, urine with little or no albumin is passed in normal quantity, jaundice has disappeared, and the patient is left with a rapid pulse, a very grave anaemia, a low red cell count, and a high remittent temperature—all the features of post-haemoglobinuric fever—then, and only then, may we turn to blood transfusion as a valuable remedy. The stage of marked renal

[1] *British Medical Journal*, 1930, ii, 268.

damage has passed, and I have seen magical results from blood transfusion. The anaemia disappears, the temperature falls almost immediately, and the patient ceases to be a problem. The best result I have seen occurred in such a case where there was an interval of three weeks between the disappearance of the albuminuria and the transfusion. Patience is required in these cases; if the transfusion is hastened, disaster invariably threatens. I remember very vividly the case of a young man who was in this stage of post-haemoglobinuric fever with grave and progressive anaemia. His albuminuria had cleared, and five days afterwards I transfused 600 c.cm. of citrated blood. In about twelve hours the left ventricle margin had come out a full inch, there was complete anuria, and he succumbed rapidly.

I have had personal experience, and have known of cases in the experience of others, where blood transfusion has been urged and given as the remedy for that stage of blackwater fever in which are found grave toxaemia, jaundice, vomiting, and complete suppression of urine. Every patient without exception has died.

Dr. Osman draws attention to the possibilities of prophylactic alkalinization. If he tries this I am sure he will be disappointed. I have never given a blood transfusion in blackwater fever without it, and so my opinions are based on its routine use. Blood transfusion has a place in the treatment of blackwater fever. Out of its proper place it is destined to failure and disrepute.—I am, etc.,

JOHN PHILLIPS, M.B.Lond.
Luanshya, Northern Rhodesia. F.R.C.S.Eng.

RUPTURE OF TENDONS

SIR,—Major C. M. Finny asks whether a rupture of the plantaris tendon has ever been demonstrated at operation. Since the publication of my paper in the *Journal* of April 11th, I have operated on a professional footballer who had sustained a complete rupture of the plantaris tendon at the same level. This combination of lesions I regard as exceptional.

Owing to the exigencies of space my paper contained merely a passing reference to that common lesion, partial rupture of the gastrocnemius or soleus, with its characteristic clinical picture so graphically described by Major Finny in his letter. The ambulatory treatment of this injury adopted by Major Finny is the correct one, and a similar regime is applicable in all partial muscle ruptures—namely, firm compression of the injured area by strapping or bandage, contractions of the muscle belly (induced if necessary by the faradic coil), and the avoidance of overstretching until sound healing has taken place.—I am, etc.,

Manchester, June 8th. HARRY PLATT.

TREATMENT OF DYSMENORRHOEA

SIR,—I have read with great interest Mr. Venn Dunn's paper on the treatment of dysmenorrhoea in the *Journal* of June 6th. Everyone will agree with him that the advances made in endocrinology call for a revision of the old classification into spasmodic and congestive types. There are, however, two statements in his paper which appear to call for modification.

He says that "In many cases of dysmenorrhoea the uterus is abnormally small." This statement should surely be modified to read: "In many cases of dysmenorrhoea the uterus *feels* abnormally small." From an experience of a large number of cases I have frequently been struck by the fact that the uterus feels small; but the passage of a uterine sound, and the measurement of its total length thereby, practically never reveals any shortening; on the contrary, the length of the cavity is often greater than 2½ inches.

In dealing with dilatation as a treatment for dysmenorrhoea, he states that "to be efficacious, dilatation must be sufficient. The cervix should be dilated up to No. 14. Further, the patient must be warned that the operation may have to be repeated in three months' time." With the first sentence of this paragraph I am in thorough agreement. The repetition of dilatation in three months' time is, in my experience, rarely necessary, provided that the dilatation in the first place is carried out far enough to secure paresis of the internal os.

Mr. Venn Dunn does not tell us what type of dilators he employs. I use Hawkins Ambler's pattern, and find that the highest number used to secure paresis varies greatly. It is rarely less than No. 26 of this pattern, and yet No. 36 may sometimes have to be used. To ensure that this amount of dilatation is carried out in safety it is wisest to divide the fibres of the internal os posteriorly, before any tearing takes place.—I am, etc.,

Liverpool, June 8th. A. A. GEMMELL.

CLOSED DRAINAGE IN THE TREATMENT OF EMPYEMA

SIR,—The description of his method by Dr. J. D. McEachern, given in the *Journal* of March 7th, and the question of priority in using the closed method in treating empyema raised by Dr. William Mitchell in a letter published on March 21st, clearly indicate the modern drift in the surgical treatment of abscessed conditions. Apart from that question, I would like to say at once that, to my way of thinking, Dr. McEachern does not make any claim to priority, and no doubt he will take an early opportunity to say so. Apart from the claim of others in this matter, we must not omit to mention Dieulafoy's method of intermittent drainage. The fact that modern practice has gone back to these primitive surgical times for ideas amazes me. The beautiful results which Lister obtained by open drainage, and his regard for that great principle in surgery that pus once discovered should be evacuated without delay, may be learned by the perusal of his addresses on the subject in the *Collected Papers*, and more particularly in a model clinical lecture published in the *Lancet* (1879, ii, 901). If anyone wants a swift, sure, and simple way of treating empyema, one within the limits of the most inexperienced surgeon, he will find it in the clinical lecture quoted above. A greater good will be done to surgery if we copy Lister's method rather than deliver panegyrics about him. Harvey's observations and experiments have been reproduced; why not Lister's? He is no more a back number than Harvey.—I am, etc.,

A. C. F. HALFORD,
Brisbane, Queensland, April 28th. M.D.Melb., F.R.A.C.S.

ACUTE MASSIVE COLLAPSE FOLLOWING LIPIODOL INJECTION

SIR,—As an old-fashioned physician I still think that in the diagnosis of pulmonary disease, whether acute or chronic, we cannot dispense with a careful and full examination of the chest for direct physical signs. These signs are more varied and trustworthy than the signs, or rather shadows, obtained by means of *x* rays. *X* rays cannot show us the exact pathological condition or the exact import of any lesion. Over-confidence in *x*-ray diagnosis may lead to mistakes in diagnosis and treatment. The easy way to knowledge is not always the best or safest.

In criticizing the joint article of Dr. Scott Pinchin and Mr. Morlock it is my duty to say that a pain in the side of a healthy-looking young man of 18 (the site, intensity, and character of the pain being ignored), without cough or expectoration, and with "no physical signs except feeble breath sounds," hardly justifies a surgical operation under an anaesthetic, even though there was some suspicion of "fibrosis with bronchiectasis," in spite of the absence of any evidence, either in the history of the patient or by physical signs, to suggest such a possibility. I do not wonder, therefore, that "many hundreds of lipiodol examinations for many varying pulmonary conditions" have been made at the Victoria Park Chest Hospital.

Neither in the brief report of the state of the patient before the lipiodol injection, nor during the subsequent period, can I find any convincing evidence of acute massive "collapse of the lung on one side." We read: "At the time of the collapse the patient showed only slight respiratory distress." This condition developed in three minutes after the operation. There was "diminished movement, slight impairment of percussion note, and a considerable diminution of the air entry over the affected side of the chest" (rather a contradiction of signs). Verily a scanty array of phenomena upon which to base the diagnosis of acute massive collapse of the lung. There is no mention of altered breath sounds, bronchial, tubular, or of increased tussive resonance, and, strangest of all, no mention of displacement of organs, especially of the heart, towards the affected side.

To me it is hardly conceivable that acute massive collapse of the lung on one side could occur in three minutes without causing severe symptoms and disturbance of the heart's position and action. I should like to know the subsequent history. My own provisional diagnosis in this case would have been localized pleurisy—perhaps interlobar—perhaps mediastinal—perhaps diaphragmatic; or even a lesion in a subpleural gland. In any event a single intracutaneous injection of tuberculin might have excluded tuberculosis. Certainly lipiodol injections could not help in the diagnosis of localized pleurisy.—I am, etc.,

London, W., June 4th. W. CAMAC WILKINSON.

HAEMOLYTIC ICTERUS

SIR,—May I be allowed to make a note on Lord Dawson's first lecture on haemolytic icterus (published on May 30th), where he describes the origin of bile pigment? It is stated that "the origin of bile pigment is extrahepatic," as it had been shown by Whipple and Hooper in 1913 that bile pigment accumulated in the blood, followed by jaundice, "in dogs in which the liver had been isolated from the general circulation." After other observations it is stated to be "clear that the marrow and spleen are sites for the formation of bilirubin."

A paper on "haematogenous jaundice" was communicated by me to the Annual Meeting of the British Medical Association in 1895, and appeared in the *Journal* of January 18th, 1896 (p. 137). It was pointed out that up to that time the existence of such a form of jaundice was considered inadmissible. By treating rabbits with phenylhydrazin assisted by metaphenylendiamin, I showed that the bilirubin was formed in the spleen and carried to the liver, kidneys, etc., and that a haematogenous jaundice was not to be discarded. The work took me many months, but a full account will be found in the *Journal* referred to.—I am, etc.,

London, W.1, June 8th. A. G. AULD.

MATERNAL MORTALITY

A Disclaimer

SIR,—While some papers correctly, though briefly, reported an address which I gave before the College of Nursing post-graduate course at the London School of Hygiene on May 18th, others did not, and serious misstatements were included in certain reports. My official position normally precludes me from attempting to correct any perversion of my addresses or papers by communicating with the press. In the present instance, however, I fear that serious misunderstanding may arise from the incorrect attribution to me of a statement that if I had the supervision of maternity cases I could guarantee a reduction of three-quarters of the present average mortality. What I did say was that if effective medical and midwife supervision of maternity cases began early enough and was properly maintained up to and after childbirth, ultimately the maternal mortality rate might well be reduced by as much as three-quarters. This is indicated by the excellent results already secured in existing practice, which are recorded on page 106 of the interim report of the Departmental Committee on Maternal Mortality for 1930.—I am, etc.,

Ministry of Health, S.W.1, June 9th. GEORGE NEWMAN.

APLASTIC ANAEMIA

SIR,—In the paper by Drs. Fenton and Taylor in your issue of May 30th the case of aplastic anaemia does not seem from their account to have been investigated bacteriologically. Until such cases are, their etiology must remain a mystery. If cultures are made from the urine I have always been able to find a minute Gram-negative bacillus which I have not so far been able to put into any particular category; nor do I know whether there is a specific organism, or whether more than one organism can produce these conditions. One thing that is quite certain is the wonderful response pernicious anaemia—plastic and aplastic—makes to immunization with these microbes. I am writing in the hope that the urines of cases will be sent to me for investigation, so that my views as to etiology may be proved or disproved.—I am, etc.,

University College, Dublin, June 2nd. W. M. CROFTON.

NUTRITIONAL VALUE OF MILK

SIR,—The *Journal* of May 30th, 1931, contains a leading article on the Ministry of Health's recent memorandum on bovine tuberculosis in man. The article concludes with the following words: "Meanwhile, under careful methods of operation and scientific control, pasteurization can ensure a milk supply which is not only perfectly safe for consumption, but which retains its food value practically unimpaired by the heat to which it is subjected." This statement is a quotation from the memorandum, and is based solely upon a report on the pasteurization of milk which was issued by the Ministry of Health in 1923. In view of the great advances that have been made in our knowledge of nutrition during the past ten years it is astonishing that the Ministry of Health should have been content to rely upon an opinion which was expressed eight years ago.

The extensive experiments that have now been carried out for several years upon school children in Great Britain have made it clear that the addition of milk, even separated milk, to their ordinary diets has had a wonderful effect upon their health. These results demonstrate two things: first, that milk in any form is a wonderful foodstuff, and secondly, that the ordinary diets of the children

concerned were not adequate to produce the highest physical standard. Had that been the case, the great increases in height and weight within the time limits of the experiments could not have occurred. The truth of this probability is further confirmed by J. B. Orr and M. L. Clark's studies of the diets of 607 families in Scotland, from which they conclude that "the great majority were incapable of supporting the optimum rate of growth." The facts which have been related show that the study of the true nutritional values of the foodstuffs of the nation, and among them milk, is one of primary importance. This work has not yet been adequately carried out, but evidence is accumulating which indicates its urgent necessity.

The most recent experiment upon the effect of the addition of milk to the home diets of school children was carried out in Lanarkshire. In this experiment, which only lasted for about four months, 5,000 school children received daily three-quarters of a pint of raw Grade "A" (tuberculin-tested) milk, and 5,000 were given the same quantity of the same milk after pasteurization in accordance with the requirements of the Ministry of Health. In the report which Gerald Leighton and Peter McKinlay issued upon the results they state that "in so far as the conditions of this investigation are concerned, the effects of raw and pasteurized milk on growth in weight and height are, so far as we can judge, equal." These conclusions have been criticized by S. Bartlett, and R. A. Fisher and S. Bartlett. The latter state that:

"It seems evident that the conclusion should have been that the growth response in height to raw milk is significantly greater than that to pasteurized . . . . These results are put on record to avoid the danger that, from a superficial examination of the report, the conclusion should be drawn that this extensive experiment demonstrates the equivalence of pasteurized and raw milk. In reality the reverse is the case; and the very marked difference in response to two materials, which in their gross nutritional contents are so closely equivalent, raises a problem of very great interest, which can probably only be cleared up by more deliberate experimentation."

They further point out that the boys appeared to obtain much greater relative benefit than the girls, a conclusion which is confirmed by the work of E. C. V. Mattick and J. Golding, who fed generations of rats on raw, pasteurized, and sterilized milk, and found that the weights of the bucks were much more rapidly affected by the different types of milk than those of the does.

In America, also, the work of A. L. Daniels and G. Stearns; of M. Ladd, H. W. Evarts, and L. W. Franks; and of M. S. Lewis, upon the feeding of infants up to 12 months of age, appears to demonstrate that there is a real difference in the nutritional values of fresh milk and milk that has been treated by heat. Those who study the chemistry of milk know well its extreme complexity and the very delicate state of balance in which its constituents exist, a balance which cannot be replaced easily if it is once altered.

The influence of nutrition upon the incidence of disease is undoubtedly great. This has long been recognized by those who have studied the effects of war or famine upon the health of nations, but it is improbable that we have appreciated its importance in our daily lives sufficiently. Recent work, however, as for example that of R. McCarrison, and of J. B. Orr, J. J. R. Macleod, and T. J. Mackie, is bringing home to us the necessity for its more complete study.

These facts are set out because of their importance to the nation and to the milk industry, since recent publications indicate that many people desire the compulsory pasteurization of practically the whole of the milk supplies of our great centres of population. This procedure has hitherto led to the almost entire extinction of fresh milk in the cities of those countries which have adopted it. The question whether we shall or shall not follow in their footsteps is one of very great gravity, which should only be decided after most careful consideration of all the issues involved.

Those who are within the milk industry know well the very great advances it has made within the last ten years under a voluntary system of licensing which has only been in existence for a short time. They realize the vast improvements that have taken place in the supplies of pasteurized and other forms of treated milk which are sold in our cities, and along with them the increasing production of fresh milk from cows which do not react to the tuberculin test, and its sale at a reasonable price in provincial towns, and even in districts like Bermondsey in London. In Reading, for example, Grade "A" (tuberculin-tested) milk amounts to about one-fifth or one-sixth of the total milk supply, and there is no reason why this should not be the case in other towns in England.

The greatest credit is due to the milk industry for the work which is being accomplished, and it would be a great pity if any action were taken which hindered its progress.—I am, etc.,

R. STENHOUSE WILLIAMS.

National Institute for Research in Dairying, Reading, June 1st.

TREATMENT OF BRAIN ABSCESS

SIR,—Mr. Courtenay Yorke, in his account of an acute cerebellar abscess following closely on acute mastoid infection, states that a knife was inserted into the cerebellum to a depth of one inch in different directions, but without result. A Record syringe with a stout needle was then tried, and at a depth of one and a half inches one drachm of pus was withdrawn. On the strength of this success Mr. Yorke appears to advocate the use of the hypodermic syringe as a searcher. Surely it was the depth to which the searcher penetrated, and its direction, which determined failure or success. Then Mr. H. V. Forster, in a letter, proclaims his "enthusiasm" for the hypodermic syringe method, and rather naïvely remarks: "If the findings are negative, then there is either no brain abscess or it is out of reach, or has not been entered by the needle." What Mr. Punch would call "Another glimpse of the obvious"!

It is rather surprising to find aural surgeons of the stamp of Mr. Yorke and Mr. Forster advocating finicking and "rest and be thankful" methods of operating on otitic brain abscesses. It is true that some abscesses recover by whatever method they are opened and drained, but there are many that do not, and it is to the treatment of this type of case on true surgical lines that the attention of otologists should be directed.—I am, etc.,

Upper Bangor, June 7th. HUGH E. JONES.

INJECTION TREATMENT OF HAEMORRHOIDS

SIR,—The report in the *Journal* (May 23rd, p. 898) of the discussion on the injection treatment of piles at the Royal Society of Medicine makes it appear that I was condemning the interstitial carbolic-glycerin method, whilst praising by comparison not only other injection methods, but also surgical operation. My remarks should have conveyed almost the opposite meaning. The inaccuracy of the report may have been partly my fault in not making my meaning clear, as I am an unpractised speaker.

I stated that an extensive practical experience of over fourteen years had confirmed me in my opinion of the efficacy of injection, which I considered the treatment of choice for suitable cases, but thought its scope more

limited than was formerly my opinion. My remarks were principally a plea that the injection method which gave such "excellent" results in skilled hands should not be exposed to the risk of discredit by extravagant statements claiming for it almost universal applicability. For this reason I confined my comments to the factors which should determine the type of case suitable for treatment and the correct technique and solution of choice. My definition of "uncomplicated" haemorrhoids from the point of view of injection as "piles which contained little fibrous tissue and in which the veins were not much fibrosed" explains, I stated, the type of case suitable, and also accounts for success or failure with injections. In skilled hands injection cured this type of case rapidly and painlessly, but here we had the limitations of injection treatment as a safe and permanently effective method.

I did not suggest that ligature was the best and injection the next best method. Ligature was best for "complicated" cases, especially as the technique affected only an area less than the size of the pile; on an average less than an inch of mucous membrane was involved. The injection method which approximated most to this was best. The interstitial carbolic-glycerin method which I advised (it was first advocated by my teachers, Mr. Swinford Edwards and Mr. Lockhart-Mummery) was therefore ideal, as the small dosage necessary (3 minims to at most 10) was injected into the pile alone. Injection cured solely by its action on the veins, causing thrombosis leading to sclerosis and shrinkage; thus haemorrhage and prolapse were cured. No injections (not merely carbolic and glycerin, as the report suggests) could get rid of fibrous tissue unless excessive strength of dosage was used, causing painful sloughing and proctitis, which may last several weeks, with possibly dangerous haemorrhage. This condition is worse than can result from operation; for such cases ligature under local anaesthesia was simpler, safer, and comparatively painless, and a combination of injection and ligature for the same case was frequently best. I told the meeting I had seen such cases in the hands of those who had recorded them without understanding the cause. The ligature operation was, however, as unnecessary and drastic for "uncomplicated" piles as injection was unsuitable for the other variety: there is an extensive field within which each is the method of choice.

As to the injection technique of choice, the meeting was asked to decide between the *interstitial* glycerin-carbolic method and the *submucous* carbolized oil method. The greater part of my remarks were devoted to this point. I condemned the out-of-date but rediscovered submucous carbolized oil method advocated by several speakers, as I had previously done (*Journal*, September 20th, 1930, p. 498), as retrograde, dangerous, and unnecessary. My reasons were that the large dosage employed (some advised 10 to 15 c.cm.) had to be injected "to a height until the mucous membrane ceased to be loose, beyond Houston's valves if necessary," to procure a generalized inflammation sufficient to make the mucous membrane adhere permanently to the rectal muscle and thus effect cure, "but the haemorrhoids still remained uncured unless injections were also made down to their level." With this technique, therefore, more than half the rectum was involved even in average cases, the mucous membrane becoming "hard as parchment." When, however, the reaction is excessive the whole rectum becomes acutely affected, and a dangerous and painful condition results. I said I had seen such cases, and the literature records numerous instances. It seemed to me unnecessarily drastic treatment to damage the whole rectum in order to cure a few piles in the lowest inch of the bowel; it was difficult to see how its sponsors could call it an "improved technique." I assured the meeting that if permanent adherence occurred "patients would be damaged for life, as the rectal mucous membrane was normally loose and should be left so, its free movement on the rectal muscle being necessary during defaecation." This alone was sufficient to condemn the submucous oil method (or any submucous method), which is simply a bludgeoning attempt by some who are ignorant of the rationale of the treatment (that is, who deny that cure is effected by thrombosis) to cure every type of pile, whether suitable or not, by injection. The eminent proctologists who introduced injection treatment to this country, and who still advise the interstitial method, never claimed almost universal applicability, but were careful to indicate the limitations of injection whilst extolling its merits.

I was alone in condemning the submucous oil method, and described a pitiful case I had seen in which pyrexia, rigors, and generalized proctitis occurred; the patient was completely disabled for two months. I was also the only speaker who considered it necessary to give reasons, anatomical and pathological, for the approval or disapproval of the methods advocated. During many years past, when those who are now advising the submucous carbolized oil method were advocating large doses with the interstitial method (as much as 40 minims of the 20 per cent. carbolic-glycerin solution, instead of the 10 minims which I advised as a maximum), I warned the general practitioner that this procedure was dangerous, and that sloughing, ulceration, and proctitis would be liable to result, due to excessive thrombosis. (Their disastrous technique was founded on their erroneous belief that thrombosis seldom or never occurred with injection, whereas pathologists have demonstrated that it almost invariably occurs.) I again warn the profession that if this oil method becomes widely practised, especially if it is "forced" in an effort to cure unsuitable types of haemorrhoids, disasters will be increased manifold; I have seen them, and the literature records many instances. These points should be made known to the general practitioner, and I was the only one to do so. Mr. Perrin and Mr. Turner Warwick, whose contributions were such an instructive feature of the discussion, were good enough to say that they agreed with my opinions, and in fairness to your readers the disadvantages and dangers of this alleged "new and improved" method of treatment should be indicated.—I am, etc.,

London W., June 3rd. P. KENNEDY MURPHY.

A SUBSTITUTE FOR HAND TOWELS

SIR,—When in Paris recently I was amused to see at the Gare St. Lazare a new method of "drying" one's hands after washing. After washing my hands with the ordinary French powder soap I searched hopelessly for a towel, until somebody indicated a foot pedal in the corner. This started a motor which blew hot air through the outlets of two pipes, about a foot apart, one delivering upwards, the other downwards. One's hands placed between the pipes became dry in a few seconds. This machine may be familiar to some of your readers, but it was new to me. Hygienically, it seems an improvement on the communal English roller towel, the impossibly expensive single towel for each person, or the uncomfortable American sheets of crinkled paper. What the cost of the machine or its maintenance is I do not know. I made a note of the address on it: Sogenex, 80, Rue F. St. Denis.—I am, etc.,

June 2nd. D.P.H.

ETIOLOGY OF ULCERATIVE COLITIS

SIR,—In the article by Dr. Arthur F. Hurst, which appeared in your issue of April 25th, the following sentence appears: "Several American physicians have told me that they have been quite unable to confirm Bargen's enthusiastic reports about vaccination with his organism, which has not been accepted by any other American workers as the cause of ulcerative colitis." I would like to point out that the final clause gives scarcely an accurate impression. The enclosed list of articles is only a portion of a number that have appeared, in which our work has been confirmed.—I am, etc.,

J. A. BARGEN.

Mayo Clinic, Rochester, Minnesota, May 22nd.

*** The following is the list of references sent by Dr. Bargen:

1. Soper, H. W.: Chronic Ulcerative Colitis, *Ann. Int. Med.*, November, 1927, i, No. 5, 313.
2. Fradkin, W., and Gray, I.: Chronic Ulcerative Colitis (Report of Vaccine Therapy), *Journ. Amer. Med. Assoc.*, 1930, lxxxiv, 849.
3. Streicher, M. H., and Kaplan, B.: Chronic Ulcerative Colitis, ibid., January 4th, 1930, xciv, 10.
4. Lynch, Jerome: Discussion, *Trans. Amer. Gast. Assoc.*, May 4th and 5th, 1930.
5. Portis, S.: Diagnosis and Treatment of Non-specific Ulcerative Colitis, *Illinois Med. Journ.*, February, 1927, li, 111.
6. Rouse, M. O.: Chronic Ulcerative Colitis, *Texas State Journ. of Med.*, January, 1931, xxvi, 649.
7. Kracke, R. R.: Chronic Ulcerative Colitis: Etiology, *Southern Med. Journ.*, September, 1930, xxiii, No. 9, 785.
8. Muniz, J. R.: La Endoscopia Recto-colica en la Disenteria Amebiana Cronica, *Vida Nueva*, August 15th, 1929.
9. Chisholm, A. J.: Symptomatology and Treatment in Chronic Ulcerative Colitis, *Colorado Med. Journ.*, January, 1928, xxv, 28.
10. Horgan, Edmund, and Horgan, Joseph: Chronic Ulcerative Colitis: Results of Treatment with Vaccine in Five Cases, *Journ. Amer. Med. Assoc.*, July, 1929, xciii, 263.

Obituary

A. T. MACCONKEY, M.B., B.CH., D.P.H.

Late Bacteriologist in Charge, Serum Department, Lister Institute

The death of Dr. Alfred T. MacConkey, on May 17th, at the age of 70, recalls to bacteriologists his early researches connected with the bacteriology of sewage and water supplies. It was his work for the Royal Commission on Sewage Disposal which led him to devise the culture media known by his name. The most distinctive feature of the liquid and solid MacConkey media was the use of bile salts in order to inhibit the growth of bacteria not derived from the intestine, and so to recognize those of faecal origin. He also incorporated glucose or lactose with the bile salt in the nutritive media. Later the commonly used "MacConkey agar" always contained not glucose, but lactose and neutral red, so that not only were the characteristic intestinal bacteria given an advantage over other forms, but also colonies of various pathogenic bacteria in faeces which did not ferment lactose were made conspicuous and differentiated from the non-pathogenic *B. coli*. In spite of the many other prescriptions for media intended to fulfil the same purpose, "MacConkey agar" is still used in this country and in other parts of the world in preference to its many rivals, especially by British workers, on account of its simplicity and effectiveness. When MacConkey began to work for the Royal Commission in 1899 the knowledge of the great variety of bacteria present in faeces and their differentiation from others commonly found in water was very elementary. The task in this field of work must have appeared overwhelming. MacConkey became intensely interested in the important problems involved, and by his enthusiastic and persistent work added considerably to our knowledge of the most useful means of distinguishing the bacteria, generically called *B. coli*, which were of recent intestinal origin from others associated with cultivated and uncultivated soils, and he helped to investigate the distribution in nature of the various somewhat similar bacteria, especially *B. lactis aerogenes*. Between 1900 and 1909 he published several papers on aspects of the same subject.

Alfred Theodore MacConkey began his medical studies at Cambridge, where he took an honours degree in Natural Science. After subsequent work at Guy's Hospital he graduated M.B., B.Ch. in 1889, and then served as house-surgeon at that hospital. He was in practice for some years at Beckenham, but illness following influenza determined his retirement from practice and devotion to bacteriology. In 1901 he joined the staff of the Lister Institute at Chelsea, and very soon was transferred to the serum department of the Institute at Elstree. In 1906, when Dr. George Dean retired, Dr. MacConkey succeeded him as bacteriologist in charge of the serum department, and thenceforward his interests lay in the technique of preparing serums. He devoted himself with characteristic attention to detail to the production of toxins and other antigens, the care and inoculation of the animals, and the management of the laboratories and farm. He took great personal interest in the individual horses, showing much kindly feeling for them. His work in producing therapeutic and prophylactic serums he looked on as a form of public service. The enthusiasm with which he rapidly enlarged the stables and laboratory accommodation during the war in order to make greatly increased supplies of serum for the Expeditionary Forces was for him an expression of his desire to be of use to the country. He was especially interested in antitetanic serum, and published several papers on its value and in exposition of his belief that it should be used more actively as a therapeutic agent. He was always ready to give help and the benefit of his experience to visitors from other serum institutes and to those starting to make medicinal serums in various parts of the Empire. His kindly advice, and hints warning beginners against avoidable difficulties, must have proved of great value to many who sought his assistance.

Dr. and Mrs. MacConkey delighted to entertain visitors from all over the world and to display his remarkably successful garden, in which he spent so much of his leisure. After 1926, when he retired from his post at Elstree, he lived at Blindley Heath in Surrey, and continued to gratify his love for the culture of flowers, especially roses.

J. A. A.

There recently died in a Dublin hospital Daniel Crowly, formerly a student of Queen's College, Cork, who graduated M.D. in 1888 at the old Queen's University. Until quite lately he carried on a large practice in the town of Loughrea and the surrounding part of County Galway, and was much esteemed. He recently resigned the coronership of the County Galway (Southern Division), and at that time he was probably the last survivor of those who had been elected to the office by vote of all the electors on the parliamentary franchise of the county; it speaks much for the charm of his personality and character that he should have been elected by popular vote in a county where clannishness was such a dominant factor. Dr. Crowly is greatly regretted by his colleagues, who could always rely on his helpful kindliness and consideration. They offer their sympathy to his widow and son, Albert Crowly, who is also a member of the medical profession.

J. M.

The following well-known foreign medical men have recently died: Dr. JEAN DUMONT, secretary of the *Presse Médicale*, aged 63; Professor AXEL HOLST, the eminent bacteriologist and hygienist of Oslo, aged 71; and Dr. J. WAGENHAUSER, formerly professor of otology at Tübingen, aged 81.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on June 6th the following medical degrees were conferred:

M.D.—R. M. B. MacKenna, C. C. R. Downing, J. P. Marsden, M. E. Lampard.
M.B.—H. L. Hoffman.
B.CHIR.—C. O. Barnes.

Sir Humphry Rolleston, Bt., Regius Professor of Physic, has been appointed to represent the University at the celebration of the 250th anniversary of the Royal College of Physicians, Edinburgh, from November 29th to December 1st, next.

Presentation to John Lane

The completion of fifty years' service by John Lane, chief assistant at the Anatomy School, was celebrated in the large lecture theatre of the Anatomy School on June 2nd, when Mr. Lane was presented with a gold watch and chain and a cheque for 105 guineas. The Vice-Chancellor of the University honoured the occasion with his presence, and Professor Wilson presided over a large and enthusiastic gathering. Miss Macalister represented the family of the late Professor Macalister. Letters expressing regret for absence were read from Sir Donald MacAlister and Professor E. Barclay Smith. Before making the presentation, Professor Wilson called upon the senior members of the presentation committee to report on their proceedings. In response, Dr. Duckworth and Mr. Hopkinson recounted the progress of their appeal, and illustrated its success by reference to the large number (1,066) of those who had contributed. Particular reference was made to the co-operation of Cambridge men now holding prominent positions on the staffs of the principal London hospitals. Thanks to their devoted efforts, the presentation had been brought to the notice of a large number of medical graduates and of students who, having left Cambridge, were now engaged in clinical work in London. Warm acknowledgement was also made of the assistance rendered by the committee and college representatives of the University Medical Students' Society, whose president was a member of the presentation committee. Professor Wilson then made the presentation, and Mr. John Lane made a brief but effectively appropriate and grateful reply. The inscription inside the cover of the watch was as follows:

"1881–1931. The presentation of this watch marks the completion of John Lane's 50th year of service in the Anatomy School, and assures him of the warm appreciation of that service by those who have combined to make the gift."

UNIVERSITY OF LONDON

The following have been recognized as teachers of the University at the medical schools indicated. Westminster Hospital Medical School: Mr. E. P. Brockman (orthopaedic surgery), Mr. C. P. Thomas (surgery), Mr. Reginald Worth (mental diseases); London Hospital Medical College: Mr. Victor W. Dix (surgery), Mr. W. S. Herman (dental surgery), Mr. E. P. Stibbe (anatomy); Charing Cross Hospital Medical School: Dr. C. W. Hutt (hygiene).

Regulations for Examinations

The regulations for the M.D. and M.S. examinations for internal students have been amended by the addition of the following sentence at the end of the first paragraph on page 219, and the last paragraph but one on page 224 of the Red Book, 1930–31:

In the pass list a mark of distinction will also be placed against the names of all candidates who, in the opinion of the examiners, have qualified for the award of a University medal, irrespective of whether the medal is awarded to them or not.

The regulations for the M.D. and M.S. examinations for external students (Blue Book, September 30th, 1930, pp. 271 and 276) have been similarly amended.

It has been decided that in and after 1932 the regulations for the academic diploma in public health be amended by the substitution of the following for the last paragraph on page 468 and the first paragraph on page 469 (Red Book, 1930–31):

(1) Part I of the examination will be held twice a year, beginning on the first Monday in April, or, if that be a bank holiday, on the second Monday in April; and on the Monday of the week prior to the first Tuesday in July.
(2) Part II of the examination will be held twice a year, beginning on the Monday in the week following that in which the June–July examination for Part I is held; and on the fourth Monday in September.

It was also decided that in 1931 Part II of the examination shall begin on the Monday in the week following that in which the September examination for Part I is held, and not on the Tuesday in that week, as provided in the existing regulations.

Mickle Fellowship

Applications for the William Julius Mickle Fellowship must reach the Principal of the University by October 1st. It is of the value of at least £200, and is awarded annually to the man or woman who, being resident in London and a graduate of the University, has, in the opinion of the Senate, done most to advance medical art or science within the preceding five years, and has therein shown conspicuous merit. Full particulars can be obtained on application to the Academic Registrar, University of London, S.W.7.

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—§*H. W. Howell, §*L. H. Howells, §*Alison F. Z. Judd, §†Muriel H. E. Long, §‡‖P. V. Reading, §‖T. F. Todd, §‖Marion E. Townsend, R. M. Alderton, Gwendolen E. Austin, F. Back, E. E. Barnett, A. L. Basham, J. E. L. Bender-Samuel, C. C. Beresford, Ilma B. S. Bingemann, Helen B. Burt, Joan Butterworth, A. C. Byles, P. H. Charlton, D. O. Clark, A. R. Clarke, R. D. Darley, H. L. G. Davies, S. D. Elliott, W. J. Ferguson, L. P. Friedman, R. J. Furlong, A. P. Gaston, J. B. George, S. J. Golden, Rebecca Goldstein, R. T. S. Goodchild, P. R. Graves, S. R. Gunewardene, F. R. Gusterson, R. L. H. Harris, Ruth M. Harris, W. H. Harris, W. Hogg, S. W. Holmes, H. R. Hovsha, D. T. Ishmael, E. Jones, H. W. Jordan, J. D. Kershaw, A. T. L. Kingdon, N. Kramer, F. P. L. Lander, E. S. Lee, P. A. T. Lowden, M. Luckeenarain, R. Machray, W. McKissock, Henrietta M. Macleod, K. M. Masani, J. H. G. Mason, Bertha I. Meyer, T. W. Mimpriss, J. Mindline, I. More, Kathleen J. Mulvany, Lois M. Munro, W. L. Neustätter, G. H. Newns, J. E. A. O'Connell, A. P. M. Page, D. N. Parfitt, F. L. L. Patrick, A. L. Pereira, J. H. Pierre, N. S. Plummer, D. C. Price, Helen M. M. Reid, T. S. Rodgers, K. M. Ross, S. Scher, V. E. P. Senewiratne, G. C. Sheldon, Helana Sidarous, S. K. Squires, Eileen M. G. Stevenson, R. G. Thomas, J. A. White, I. G. Williams, F. W. Willway, W. Young. *Group I:* W. Aukin, H. B. Barker, H. W. Benham, A. I. P. Brown, A. Burkhardt, E. H. Capel, A. F. H. Coke, H. E. B. Curjel, J. O. F. Davies, S. B. Dimson, P. G. Dowdell, E. H. Evans, Phyllis M. Fraser, J. B. Great Rex, Hilary S. M. Hadaway, D. W. James, E. G. M. Jones, B. W. Knight, G. A. M. Lintott, W. F. McGladdery, Dorothy Makepeace, S. F. Marshall, Gwendolen E. M. Meyer, J. E. Morton, D. D. Payne, R. N. C. Smith, B. Southwell, T. Standring, F. L. Wheaton, S. J. Wheeler, E. L. Williams. *Group II:* I. S. Acres, K. C. Buck, Margaret E. Cope, D. F. L. Croft, J. R. Crumbie, E. B. Grogono, J. M. Harker, B. T. W. Harvey, K. L. James, S. Lefcovitch, K. S. May, E. R. R. Mellon, H. S. Morton, D. K. Mulvany, C. F. Price, W. M. Priest, J. M. Robertson, R. W. Scarff, M. R. Thomas, W. J. Tindall, R. S. Wale, G. Wells.

§Honours. *Distinguished in Medicine. †Distinguished in Forensic Medicine. ‡Distinguished in Surgery. ‖Distinguished in Midwifery.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have been approved at the examination indicated:

MASTER OF MIDWIFERY.—A. V. Clemmey, B.M., B.Ch.Oxf., A. Gardiner, M.B., B.Ch.Glas., Greta Hartley, M.B., B.S.Lond., Eva J. Newton, M.B., B.S.Lond.

The Services

SHORTAGE OF MEDICAL OFFICERS IN THE SERVICES

COMMITTEE OF INQUIRY

A committee, constituted as follows, has been appointed by the Prime Minister to investigate the causes of the shortage of officers and nurses in the medical and dental branches of the three defence Services, and to recommend by what means the situation can be remedied: Sir Warren Fisher, Permanent Secretary to H.M. Treasury (chairman); Mr. C. L. Bullock, Secretary of the Air Ministry; Sir Herbert Creedy, Permanent Under Secretary of State for War; Mr. H. E. Fass, Principal Assistant Secretary to the Treasury; Lieut.-General Sir Harold Fawcus, Director-General Army Medical Services; Professor G. E. Gask, Director of the Surgical Unit, St. Bartholomew's Hospital; Surgeon Vice-Admiral Sir Arthur Gaskell, Medical Director-General Royal Navy; Dr. A. M. H. Gray, Dean of University College Hospital Medical School; Air Commodore J. McIntyre, Director of Medical Services Royal Air Force; Sir Oswyn Murray, Secretary of the Admiralty; and Sir S. Findlater Stewart, Permanent Under Secretary of State for India. The secretary of the committee is Mr. W. Lindsay Scott of the Air Ministry.

RECEPTION AT R.A.M. COLLEGE

The officers of the Royal Army Medical Corps held a reception at their headquarters mess at Millbank on the evening of Thursday, June 4th. The guests were received by Lieut.-General Sir Harold Fawcus (Director-General, Army Medical Services) and Lady Fawcus, and the large company present included the President of the General Medical Council, the Presidents of the Royal Colleges of Physicians and Surgeons, leading representatives of the metropolitan medical schools, and many other members of the profession in London. The laboratories and lecture rooms of the Royal Army Medical College were on view during the evening.

DEATHS IN THE SERVICES

Surgeon Rear-Admiral John Hutton Stenhouse, R.N. (ret.), died in a nursing home in Edinburgh, on April 4th, aged **65**. He was educated at Aberdeen University, where he graduated as M.B. and C.M. in **1886**, and, entering the Navy soon after, attained the rank of rear-admiral on July 3rd, **1920**. He served through the war of **1914-18**, receiving the medals.

Surgeon Captain William Kenneth Dudoit Breton, R.N. (ret.), died on April 4th. He was educated at St. Mary's, took the M.R.C.S. and L.R.C.P.Lond. in **1902**, and after holding the posts of resident medical officer at St. Mary's and house-surgeon and dental house-surgeon at the West London Hospital, entered the Navy. He attained the rank of surgeon commander on January 1st, **1917**, and retired, with an honorary step as surgeon captain, on August 10th, **1925**. He served throughout the war of **1914-18**, receiving the medals.

Major Douglas Noel MacLeod, R.A.M.C., died in the Cambridge Military Hospital at Aldershot on May 9th, aged **44**. He was born on December 25th, **1886**, the younger son of the late Dr. Neil MacLeod of Shanghai, and was educated at Cambridge, where he graduated B.A. with honours in the Natural Science Tripos in **1907**, and at Birmingham, where he graduated B.Ch. in **1911**, and M.D. in **1913**. After filling the posts of house-surgeon and house-physician in the Queen's Hospital, Birmingham, he joined the R.A.M.C. when the war began, as a lieutenant in the Special Reserve, before the end of **1914**, took a permanent commission as lieutenant on January 1st, **1917**, and became major on November 25th, **1926**. He served throughout the war of **1914-18**, and was mentioned in dispatches in the *London Gazette* of May 29th, **1917**. He had only recently returned to England from Cairo.

Medico-Legal

CONVICTION FOR FALSELY PRETENDING TO BE A MEDICAL MAN

At Warrington police court on May 29th, D. Tindall, or Richard Tindall, of Warrington, was summoned by the Medical Defence Union on four charges—two of falsely pretending to be a bachelor of medicine, another of falsely using that title, and a fourth of pretending to be a general practitioner in medicine. He was fined £5 on each of the four summonses—£20 in all—with the alternative of one month's imprisonment on each summons.

Mr. T. S. Steel, solicitor, who conducted the prosecution, said that Tindall was an undertaker and certified embalmer. He had claimed to be a fully qualified medical man, holding the degrees of M.B., Ch.B. (which was printed on his visiting cards), and stated that he was a member of the Royal College of Surgeons, had issued prescriptions which were made up by local chemists, and had presumed to treat professionally people suffering from various diseases. He claimed to have acted as an anaesthetist to three prominent Manchester practitioners, to have made application for the post of anaesthetist at Warrington Infirmary, and to have interviewed the clerk of the local insurance committee with a view to starting an insurance practice in Warrington.

Mr. George Sturgess, solicitor for the defence, said that Tindall served in the R.A.M.C. during the war, and his duties in that capacity created in him a desire to be a medical practitioner. He failed to pass matriculation, but he had a library of medical books, and had studied the subject. He was the victim of a pathetic ambition.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons was in committee on the Finance Bill for four days this week.

On June 9th the House of Lords gave second readings to the Housing (Rural Workers) Amendment Bill and the Merchant Shipping (Safety and Load Line) Bill. The Widows', Orphans', and Old Age Contributory Pensions Bill passed through committee.

The Parliamentary Medical Committee and other members of the House of Commons were addressed by Sir Leonard Hill on June 9th, his subject being the ventilation of the House of Commons. Dr. Salter presided. Sir Leonard Hill said he objected to the present system, whereby air entered the House through the floor. He proposed the admission of a stream of cool air at the level of the gallery, to descend on the heads of members. If desired, hot-water pipes could be installed under the feet. Comfort was best secured when the air was cool but the walls warm. He suggested that the Chamber and other rooms of the House should be heated at night and then flushed out with cool air. Tests made in the Chamber had shown that the present upward current carried away infectious spray from the mouth. There was more danger of infection when members talked and coughed in the division lobbies.

A discussion followed Sir Leonard Hill's address. Speakers agreed that the improvement of ventilation was not only desirable in the Chamber but in the committee rooms and the library. Mr. Lansbury suggested that there should be a further inquiry into the ventilation of the whole building.

The Budget: Petrol Tax

On June 8th the House of Commons began consideration of the Finance Bill in committee. Clause 1 increases the Customs duty on hydrocarbon oils from 4d. to 6d. a gallon.

Dr. Fremantle and other members had put down amendments to exempt from the duty petrol used by medical practitioners and veterinary surgeons in carrying on their medical and veterinary practices, and petrol used in hospital ambulance work.

During the debate on the motion that Clause 1 should stand part of the Bill, Dr. FREMANTLE said under the guillotine resolution they were compelled to pass over a number of amendments to the clause which were of definite importance. As illustrations, he mentioned two amendments, in which he was particularly interested—amendments which suggested exemption in the case of ambulances attached to hospitals and in the case of medical and veterinary practitioners. There were precedents for these proposals, and he only spoke of them as illustrating the damage which could be done by imposing a general duty of this sort without giving time for the consideration of exemptions. In the Finance Act, 1910, which originally imposed the motor spirit duty, medical men were given a rebate of half the duty in respect of motor cars owned and used by them in carrying out the duties of their practices. As regarded ambulances, there was also a definite precedent; at present, lifeboats were exempt. Why, then, should ambulances of hospitals be taxed? They were required more than ever to-day, because of the increasing number of road accidents. The cost of those accidents was not paid by the Government, and was not, to any large extent, borne even by the people who suffered. To a large extent they were borne by the voluntary hospitals, the ambulance services, and the St. John Ambulance Association. A very small proportion was paid by the people who had the benefit of these services. He knew that in theory the Government proposed to their Socialist supporters that there should be Socialistic services of this kind and that all those things should be run by the State. On the other hand, they came to the House of Commons and said, "We have to take things as they are." Then they put even greater burdens on the people who

already had to bear the handicaps of this service. They said that they were compelled to do so pending the nationalization of those services. There might one day be the nationalized medical service proposed by Mr. Hastings, but it would be a long time before it came. It would be the acid test of the theory, because people would then have an opportunity of realizing the rights and wrongs, the advantages and disadvantages, of a mechanical system. This clause would add considerably to the cost of running ambulances and to the expenses of the country doctor. He reckoned that to the ordinary country doctor who covered 20,000 miles a year, and whose car did twenty miles to the gallon, the extra 2d. would cost an extra £10 a year. Therefore the clause would place an additional burden of £10 a year on the country doctor who used his car in order that he might get more quickly about his district and attend the people under his care. There was a definite case which the Government ought to face.

The clause was agreed to.

Vaccination

Mr. FREEMAN put a question, on June 4th, concerning a boy aged 7, who (he alleged) had lost the sight of his right eye as a result of vaccination by the public vaccinator at Dagenham in October, 1930, while under treatment at the same time for a septic knee. Mr. GREENWOOD said his attention had been drawn to the case. The vaccination had been performed with the consent of the parents, and the public vaccinator found no physical reason why the boy should not be vaccinated, nor did he observe any evidence of an affection of the eye when he inspected the vaccination on November 4th. It was not until thirty-six days after the date of vaccination that the boy was taken to the school clinic at Barking on account of eye trouble. Mr. Greenwood was advised that the course of events was not consistent with the suggestions which had been made that the affection of the eye was the result of the vaccination, or that vaccine entered the eye at the time of vaccination. Mr. FREEMAN asked whether the Minister knew that the parents of the child were not present at the vaccination, and whether any medical examination of the child took place to show that he was in a fit state to stand the result of the operation. Mr. GREENWOOD said the public vaccinator was himself a medical man and he should accept his report. The Minister could not say without notice whether an inspection of the child was made or whether the public vaccinator found that there was a septic condition at the time. It was very difficult to say that medical evidence, or an examination of the child, could prove vaccination was the cause of the blindness, when the additional disability was discovered well after a month from the vaccination.

Replying to Mr. Freeman, on June 4th, Mr. GREENWOOD said the circumstances of the death at South Wigston, near Leicester, of twin children, both considered to be in good health, who were vaccinated on May 14th and died on May 29th and 30th respectively, had been inquired into by a medical officer of his department, and pathological investigations were now in progress. He would communicate with Mr. Freeman when the results were available. He could not say without notice whether Government lymph was used in this case, or whether public vaccination had now ceased in that district.

Small-pox

Miss LAWRENCE, on June 2nd, stated that there were 11,839 cases of small-pox among the civilian population notified in England and Wales (including port sanitary districts) during the fifty-three weeks ended January 3rd, 1931. Of the total deaths registered in England and Wales during 1930, 28 were classified to small-pox.

Committee on Food Standards

On June 4th, in reply to Mr. R. J. Russell, Mr. GREENWOOD stated that a Committee on Food Standards had been set up to inquire into the working of the law as to the composition and description of articles of food other than milk, and to report what alterations, if any, in the law or its administration appeared to be desirable. The members of the committee were Sir Frederick Willis (chairman), Mrs. J. L. Adamson, Mr. W. Barratt, Mrs. E. Beck, Mr. J. N. Beckett, Mr. G. A. Birse, Mr. H. F. Carlill, Mrs. M. E. Cottrell, Mr. A. T. A. Dobson, Mr. H. E. Goodby, Dr. J. M. Hamill, Mrs. Jean Roberts, Mr. R. A. Robinson, Mr. H. Shaw, and Mr. G. Stubbs.

Sale of Butter

Replying to Captain P. Macdonald, on June 2nd, Miss LAWRENCE said that an examination was made of butter imported into Great Britain for sale. Butter exposed for sale might be seized and destroyed if found to be unfit for human consumption. Samples were taken by officers of local authorities under the Food and Drugs (Adulteration) Act and the Sale of Butter Regulations, and the vendor was liable to prosecution if there was evidence of adulteration. Answering Colonel Ruggles-Brise, Miss LAWRENCE said that samples of recent consignments of Russian butter had been found on analysis to be genuine. She was having further samples examined bacteriologically.

Supervision of Nursing Homes.—Mr. GREENWOOD told Mr. West Russell, on June 4th, that under the Nursing Homes Registration Act, 1927, the London County Council was the local supervising authority for private nursing homes in the metropolitan area outside the City of London, and a complete statment of the present position would be included in the Council's report for 1930, which was now in preparation.

Indian Hospitals and Dispensaries.—Mr. BENN, in reply to Mr. Freeman on June 4th, said that in 1928 there were 552 State-public hospitals and dispensaries in British India, 3,713 local fund institutions of the same character, and 306 privately aided institutions. During that year 888,651 indoor and 49,229,903 outdoor patients were treated at these institutions.

Tuberculosis in H.M.S. Warspite.—On June 8th, Mr. G. HALL told Sir B. Falle that the number of cases of tuberculosis which had occurred in H.M.S. *Warspite* since she recommissioned on January 23rd, 1929, was thirteen, of which eleven had been invalided and two had died in hospital. Sir B. FALLE asked Mr. Hall specially to inquire into this matter and ascertain why there had been so many cases, and how many of these men had been pensioned. Mr. HALL replied that eight were pensioned out of thirteen. An inquiry had already been held, but unfortunately they were not able to ascertain the actual cause of the very high percentage of cases in 1929.

Veterinary Medical Research.—Dr. ADDISON told Mr. C. Williams, on June 8th, that he could not say at present whether it would be necessary for him to ask the House to pass a supplementary estimate to carry out the scheme now being prepared for the development of veterinary medical research.

Medical News

In the list of medical men included in the Birthday Honours, published last week at page 1004, we accidentally omitted the name of Lieut.-Colonel Thomas Reginald St. Johnston, C.M.G., Governor and Commander-in-Chief of the Leeward Islands, who receives the K.C.M.G.

On the afternoon of Tuesday, June 30th, H.R.H. The Duchess of York, President of St. Mary's Hospital, will lay the foundation stones of the new medical school and pathological institute, and the Right Hon. Stanley Baldwin will give a short address. The operating suites, wards, and laboratories of the hospital will be open for the inspection of visitors.

The next meeting of the Biochemical Society will be held at the Marine Biological Station, Plymouth, to-day (Saturday, June 13th), at 3.30 p.m.

Sir W. R. Morris, Bt., will distribute the prizes at St. Thomas's Hospital Medical School on Wednesday, June 24th, at 3 p.m. The whole hospital will be open for inspection during the afternoon.

Lord Macmillan, chairman of the University Court of the University of London, will distribute the prizes at the London Hospital Medical College on Wednesday, June 24th, at 3 p.m.

Sir Robert Horne will be the principal speaker at the dinner to be held by the British Science Guild at the Hyde Park Hotel on Friday, June 19th, with Sir Samuel Hoare in the chair.

The Home Secretary, Mr. J. R. Clynes, will speak at the annual meeting of the National Institute for the Deaf, to be held at the Church House, Westminster, to-day (Friday, June 12th), at 3.30 p.m., when Dr. F. E. Fremantle, M.P., will preside. The meeting is a public one, and those who are interested in deafness and the welfare of those suffering from it are invited to attend.

The annual meeting of the Incorporated Lancashire and Cheshire Society for the Permanent Care of the Feeble-Minded will be held at the Sandlebridge Institution, Alderley Edge, on Wednesday, June 17th; the Lord Mayor of Manchester will take the chair at 3.15 p.m. The Thomasson and Sam Gamble Day School will be open for inspection at 2.30 p.m., and tea will be served at Warford Hall at 4 p.m.

Particulars of the lectures and demonstrations arranged for next week by the Fellowship of Medicine will be found at page 244 of the *Supplement*. The special evening lectures to candidates for the M.R.C.P. are being continued. Syllabuses and tickets for all the courses may be had from the Fellowship of Medicine, 1, Wimpole Street, W.1.

The secretary-general asks us to state that the second International Congress for Light will be held in Copenhagen in *1932* and not this year. A detailed programme will be issued in the autumn of this year.

The first International Neurological Congress, the foundation of which was suggested by the late Professor Hermann Oppenheim in 1912, will be held in Berne from August 31st to September 6th under the presidency of Dr. B. Sachs of New York. The four official languages will be English, French, German, and Italian.

On Sunday, June 7th, H.R.H. Princess Victoria visited Gerrard's Cross, and in the parish church unveiled a tablet which has been placed there to the memory of the late John Llewelyn-Jones, M.D.Lond., J.P., well known in South Bucks, who died in February, 1930. A short address was given by Mr. D. Cotes-Preedy, K.C., Recorder of Smethwick, himself a member of the medical profession and an old friend of the deceased. A large congregation testified to the esteem in which—to quote the words on the tablet—"a beloved physician and steadfast friend" was held.

At a special meeting of the Royal Society of Medicine, held on May 19th, a resolution was adopted abolishing the Sections of Balneology and Climatology and of Electro-Therapeutics. It was also decided to establish in substitution thereof a Section of Physical Medicine, which shall have for its object the study of balneology, climatology, and electrology, and ancillary subjects, and also a Section of Radiology for the study of radiology and subjects relating thereto.

Commemoration Day at Livingstone College, Leyton, was held on June 4th, when the chair was taken by Mr. W. McAdam Eccles, F.R.C.S., the visitors including many representatives of missionary organizations. The chairman recalled that some thirty-nine years ago Dr. Harford, Dr. Guinness, and himself worked out, in a very small way, the great desire that they had that men and women going to the mission field might be so instructed as to be able to take care of their own health. In those days there was terrible mortality among British and American folk going to unhealthy climates. Personal experiences, testifying to the great practical value of the courses of instruction at Livingstone College, were given by the Rev. F. Hart of the Regions Beyond Missionary Union, Congo, and the Rev. Geoffrey Holmes, Church Missionary Society, Ruanda, East Africa. Mr. R. L. Barclay, the treasurer, spoke as to the financial position of the College; he appealed for £100 in order to close the financial year without an overdraft at the bank, and for a further £250 to £300 for urgent necessary repairs. The principal, Dr. Tom Jays, made a short statement with regard to the work of the College, and a vote of thanks to the chairman was accorded on the motion of Dr. L. E. Wigram.

A new series of conducted tours has been arranged in aid of King Edward's Hospital Fund for London. On June 18th there is to be a river trip to Tilbury Docks, including inspection of s.s. *Orontes*, with buffet lunch on board, by invitation of the Orient Steam Navigation Co., Ltd. The party will leave Westminster Pier at 9.30 a.m. On July 2nd a visit will be paid to Somerset House, where the party will meet in the quadrangle (off the Strand) at 4.30 p.m. The assistant Registrar-General, Mr. W. L. Rind, will receive the visitors and tell them something of the history of Somerset House. The last visit will be to the Air Port of London on July 14th, a private omnibus leaving Charing Cross underground station, Victoria Embankment, for Croydon at 2 p.m. As the number of each party is limited, application for tickets (price 25s. for the first tour, and 7s. 6d. for each of the others) should be made without delay to the secretary, King Edward's Hospital Fund, 7, Walbrook, E.C.4.

The twenty-fourth Voyage d'Etudes Médicales to the watering places of France will take place this year in the Western Pyrenees during the second and third week of September, under the leadership of Professors Paul Carnot and Maurice Villaret. The party will assemble on September 8th, at Capvern. The principal places to be visited are Bagnères-de-Bigorre, Le Cirque de Gavarnie, Cauterets, Lourdes, Argelès, Pau, St. Jean-de-Luz, Biarritz, Hossegor, Dax, Arcachon, Bordeaux (Faculty of Medicine and the hospitals), continuing along the coast to Royan, where the tour ends on September 20th. Further information can be obtained from Madame Juppé-Blaise, Federation of the Health Resorts of France, Tavistock House (North), Tavistock Square, W.C.1.

The issue of *La Medicina Ibera* for May 23rd contains an illustrated account of the first Hispano-Portuguese Congress of Obstetrics and Gynaecology, held at Madrid from April 28th to May 4th.

A general account, by Dr. P. Heffernan, of the trans-atlantic tuberculosis tour of 1930 has been published in the April issue of *Public Health*. It contains some comparative statistics of tuberculosis in England and Wales and Canada, a description of the work at Ninette Sanatorium, Manitoba, and a general evaluation of British and Canadian sanatorium methods. Dr. Heffernan also contributed to the January number of *Tubercle* some notes on pneumonoconiosis, in which he referred to silicosis in Canada, and mentioned the adoption by the Government of Ontario of the Bulmer air mask, which is thought by some to have gone far towards solving the problem of the dust risk in the mining industry.

The jubilee issue of the *Journal de Médecine de Paris*, the official organ of the Paris medical societies, contains the history of the journal, which was founded by Auguste Lutaud in 1880.

A bronze bust of the late Professor Clemens Pirquet was unveiled in the garden of the New General Hospital of Vienna on May 12th, when addresses were delivered by Professors Argt, Hamburger, and Noeggerath, and Miss Harriette Chick of the Lister Institute.

Dr. H. I. Daggett, on the occasion of his retirement after over thirty-eight years' practice at Boroughbridge, Yorks, has been presented by his friends and patients with an inscribed wallet, containing a cheque for £161, as a mark of their esteem and appreciation of his services.

Professor Raffaele Bastianelli has been nominated director of the Institute for the Study and Treatment of Cancer at Rome.

According to the Japanese Red Cross the average duration of life in Japan is 42 years for men and 43 years for women, as compared with 55 and 59 years in England, and 50 and 53 years in the United States.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM* **9861, 9862, 9863,** and 9864 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS

"Naturkultur"

"X. X. X." (London, W.C.) writes: One of my patients is anxious to try naturkultur. Can any of your readers tell me of any centres in Germany or elsewhere where this is practised under medical supervision?

Catarrh of Upper Respiratory Tract

"S. S." writes: Can any reader suggest a remedy for catarrh in a suffering colleague? The condition—chiefly laryngeal and tracheal, but sometimes also post-nasal—is such that life has become a burden. The sufferer has had pulmonary tuberculosis (arrested some years ago). The larynx appears normal. All the usual remedies have been tried in vain, and vaccines have only aggravated the condition.

Income Tax

Appointment : Qualification Expenses

"G. C." holds an appointment at an institution which has been taken over by a county authority. If he wishes to continue to hold the appointment after the expiration of the original three years' contract he will have to take an additional qualification. Can he deduct as a professional expense the amount of the examination fee?

*** We do not think so, though the circumstances are admittedly unusual. The fee is incurred in adding to his qualifications for an indefinite future period, and would probably be regarded by the courts as capital outlay. In Simpson *v.* Tate, Rowlatt, J., distinguished between the expense of qualifying for an office and the (allowable) expense of performing it, and in that case even the cost of annual subscriptions was refused.

Changes in Partnership : Cash Basis

"R" has been affected by the following partnership changes: M, R, and B were in partnership until September, 1929, when B died and F entered the firm. The practice was treated as continuing for income tax purposes. R is retiring on July 1st next, and X is coming in as a partner. The firm's accounts have been made up to December 31st, and in 1930 R received £321 from book debts of the old firm M, R, and B, and £1,047 (net after deduction of the usual expenses) from the new firm M, R, and F. The inspector of taxes claims that for 1931–32 R must pay tax on the £321 plus one-quarter of £1,047, leaving the new partner to pay on three-quarters of £1,047, in respect of the nine months from July, 1931, to April, 1932; further, that for 1932–33 and 1933–34 R will be liable to assessment on the amount of cash paid to him in respect of collected book debts.

*** We are in disagreement with the inspector's suggestion. It cannot be too strongly emphasized that the amount of the cash receipts is merely a convenient method of calculating the earnings of a practice for a year—admittedly liable to variation from the amount of the true profit in any one year, but near enough in the long run if the practice is not substantially altering in volume. Having ascertained the "cash basis" profit of the whole practice for, say, 1930, that amount is deemed to be the "income" of the firm, as a firm, for the financial year commencing April 5th, 1931, and, for purposes of fixing the amount of tax to be borne by each partner individually, should be regarded as split up between the partners according to the arrangements in force for the taxation year. For instance, suppose that the profits of the practice, reckoned on a cash basis, for 1930 are £3,600, and that throughout the partners have taken one-third shares, then R will have to account, as for the financial year commencing April 5th, 1931, on one-quarter of one-third of £3,600—that is, on £300 only. The amount of cash paid to him out of the firm's account is not relevant. There is no real hardship on the new partner paying tax on unrealized earnings, or if there is, it is shared by every tradesman who finds his profits being locked up in stock and book debts.

LETTERS, NOTES, ETC.

Concurrent Herpes and Varicella

Dr. J. SPEARS (London, S.W.19) writes: On May 15th I was consulted by a female patient, aged 46, and found her to be suffering from a typical attack of herpes of the forehead and scalp on the left side, which had commenced on the previous day. It was accompanied by much pain. On May 18th I was called in to see her again on account of the pain, and found her affected also by an attack of varicella affecting the chest, arms, and back. The eruption came out in successive crops during the next three days. She thinks she had an attack of varicella in infancy. Probably it is rather rare to see the two eruptions simultaneously.

Warnings

"J. R. H." writes: The young man referred to by "A London Surgeon" in the *Journal* of June 6th (p. 1008) has, I regret to say, been extending his operations into the West of England. He has paid me two successful visits, and has traded upon my regard for his father, who served in the same unit in France with me. Unfortunately, also, he did not hesitate to appeal to my sympathy on the ground that his mother was away from home and unable to help him, having been called to the bedside of his younger brother at school, who was suffering from meningitis and seriously ill.

Dr. ROBERT HUTCHISON writes: I should like to warn doctors in the Harley Street neighbourhood against a seedy-looking, rat-faced individual who may call to make an appointment for a lady alleged to be living in Bournemouth, and who wishes to come up to London with a view to entering a nursing home. From my experience the appointment will not be kept, and some article of value will probably be missed after the caller has gone.

A Wrapping for Medicine Bottles

Medical practitioners who do their own dispensing, or keep dispensers, may be glad to know of a new device, which we are informed has already been well received. This is a neat paper bag or envelope, with gummed flap, to take 4, 6, or 8 ounce medicine bottles, and it appears to be a great improvement over the loose sheets of paper and sealing wax generally used. One of the main advantages of the new method is the speed with which bottles can be packed, for the whole operation takes only a fraction of the time required for wrapping in the old way. The prices range from 12s. 3d. to 17s. per 1,000, according to the size of the bag and the quantity ordered at one time. These bags are obtainable from Messrs. Charles Stevens and Son, 12–14, Great Central Street, Leicester, who will send samples to any medical man or dispenser on request.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, 48, 49, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 243.

A British Medical Association Lecture

ON

SOME ANTE-NATAL PROBLEMS*

BY

SIR EWEN J. MACLEAN, M.D., D.Sc., F.R.C.P.

PROFESSOR OF OBSTETRICS AND GYNAECOLOGY, WELSH NATIONAL MEDICAL SCHOOL; VICE-PRESIDENT, BRITISH MEDICAL ASSOCIATION

A perusal of the now vast literature on ante-natal care, including tomes and textbooks, propaganda pamphlets and handbills, might lead the undiscerning to surmise that it was not until within recent years, or even months, that the general practitioner engaging in midwifery practice had become aware of the possible existence of, for example, contracted pelvis; of the significance of albuminuria in pregnancy, or of heart disease, or of tumour complications. Indeed, some of the less responsible of such publications, short, it is true, of actual delineation, would appear to imply a ludicrous picture of the general practitioner who, having casually accepted the responsibility of attendance, arrives all too late, bearing a small bag—usually faded black in exterior and indescribable in content—and is surprised and distressed to find the contracted pelvis case exhibiting the classical signs of ruptured uterus; or an albuminuria case in the throes of eclampsia; or the cardiac *in articulo mortis*. Let us extend to him, poor fellow, our heartfelt sympathy, for he has further to bear the reproachful demeanour of the ideal midwife and the fraternal greetings of the junior consultant, for whom, let us hasten to add, by way of giving a touch of colour to the unhappy scene, the enterprising local authority has provided a not unreasonable fee.

I have exaggerated this picture with the set purpose of saying that, whilst wise propaganda is undeniably essential to the much-needed wider submission of pregnant women to ante-natal examination, the kind of propaganda directed to undermining confidence in the general practitioner is as unwise as many or most of the allegations to that end are, emphatically, untrue. It is not thus that Ballantyne, perhaps the earliest and certainly one of the most distinguished of the pioneers in urging the necessity of ante-natal care in this country, initiated his mission, and it is assuredly not the manner in which he would have had it supported.

The truth is that as yet the sum total of knowledge concerning the causes of many of the ante-natal conditions which give us anxiety is limited, and that more effective lines of treatment can only be the product of further knowledge and of more experience in its application. This observation notably applies to the toxaemias of pregnancy, which afford, as a whole, a very complex biochemical problem, toward whose solution much intensive effort is now being directed. I was deeply interested to hear, for instance, in the course of a lecture recently delivered by Sir Frederick Gowland Hopkins, the distinguished President of the Royal Society, before the Cardiff Medical Society, that there is some hope of the identification of a certain vitamin which may be proved to play an important part in the toxaemias, and in the capacity of resistance to infection. But some of the day-to-day ante-natal problems lie much nearer to the surface than these biochemical delvings, hopeful and imperative though they be.

MINOR DEGREES OF PELVIC CONTRACTION

Let us take an illustrative case. A primigravida comes early in pregnancy to engage a medical man for her confinement. She presents none of the obvious signs of rickets, the urine is normal, and the general health good. But with the thumbs on the anterior superior spines and the first and second fingers of each hand on the widest parts of the iliac crests, he gains the impression that there is less than the usual one inch of difference between the intercristal and the interspinous diameters. There is, of course, nothing new in this preliminary thumb and finger estimate, but I constantly impress upon students, undergraduate and post-graduate, the importance and value of practising it whenever possible and on all kinds of cases, so that the individual examiner comes to establish a very helpful confidence in his initial impressions of the type of pelvis he has to deal with, and as to the further investigations which may be indicated.

In the case we are advancing for consideration he will check his impressions by the pelvimeter—preferably of the simpler type—and will find that the interspinous diameter is, let us say, 10½ inches, the intercristal 11 inches, and the external conjugate 7 inches instead of the normal 7½. The transverse of the outlet may be rather more than the usual 4 inches. The key diameter is, of course, the true conjugate, and in order to estimate it the diagonal conjugate must in due course be measured. In the early months of pregnancy, and especially in primigravidae, this is by no means an easy matter, even under an anaesthetic, and without it the necessary manipulation is difficult and painful. A simple vaginal examination at this stage, however, will serve to reveal the comparative roominess of the pelvic cavity and the absence of any considerable forward encroachment by the sacrum. Should the sacrum be easily felt in the course of such an examination it would signify a degree of contraction considerably in excess of what we are now contemplating in our illustrative case, which no doubt has been recognized, so far as we have gone, as one, probably, of simple flat pelvis.

Beyond reminding ourselves that about the fourth month the possibility of incarceration of the gravid uterus, due mainly to the degree of overhang of the promontory of the sacrum, has to be guarded against, let us leave our case to develop, so to speak, toward the later months, and consider for a moment pelvimetry.

Value of Pelvimetry

The measurement of the pelvis is one of the most important factors in ante-natal examination, and especially in that of primigravidae. How often it is that in taking the history of obstetrical and gynaecological cases the first labour is quoted as the beginning of the troubles when intervention became a matter of emergency instead of election, with its implied previous examination.

It is not my purpose to go into details of methods and measurements, but I am convinced that the value of pelvimetry to the individual practitioner as a guide to the management and treatment of a given case depends upon the sense of perspective and judgement which aggregated examinations have established in his own mind, confirmed or corrected in the only effective way, by the "follow through" of his cases into the natal and post-natal phases. I advocate strongly this continuity in the interests of the practitioner and of his patients. Any scheme which fails to provide for its observance where possible will by so much—and it is a great deal—come short of success. In many areas where ante-natal clinics exist, otherwise doing good work, this virtual severance from the subsequent phases has, admittedly, minimized their value for the patient and their help to those in charge of the labour and puerperium. Poorly paid and anxious though much of midwifery practice may be, I would urge general practitioners, in view of the inevitable developments in the near future, to maintain a lively interest in ante-natal work in their own practices, and to

* Delivered to the Leicester and Rutland Division of the British Medical Association, March 6th, 1931.

keep in touch with clinics where they exist. Many of these clinics are attractive in facilities for examination and are well staffed, but the great bulk of the women confined in this country have never been near them.

It is, I am sure, the experience of all here that the essentials of ante-natal examination are readily carried out in the patient's home or in the consulting room.

A simple form of pelvimeter—I personally use Baudelocque's, though there are others equally good—will give the principal external diameters; and of the internal measurements, the diagonal conjugate from promontory to subpubic angle, which by deducting half an inch gives the available true conjugate, is of dominant importance. As regards other internal measurements, the results obtained by the use of the more or less complicated pelvimeters are rarely of much practical value and may even be misleading. Such, anyhow, has been my experience, and where in asymmetrical pelves, for instance, the deformity is marked, the occasion for and the kind of intervention required are usually indicated by other and simpler means.

Management of Later Stages

To continue the running commentary on our primigravida with a minor degree of simple flat pelvis, now in the later months of pregnancy, say, the thirty-sixth week—a month from term. The preparatory redundancy and softening of the tissues has permitted a more accurate estimate of the diagonal conjugate and the deduction therefrom that the true conjugate is not less than $3\frac{1}{2}$ inches—possibly $3\frac{3}{4}$ inches. Abdominal palpation portrays a first vertex with the head rather above the brim, and with an inclination towards the left iliac fossa. Such cases are far too often marked down in ante-natal clinics as likely to become transverse presentations, for which Caesarean section should be indicated, or, at all events, considered. The usual happening, however, is that with the onset of labour at term the faulty lie is corrected and the head becomes accommodated to the brim. It is worth remarking, also, that too much importance may be attached to the fact that in the minor degrees of this type of pelvis the head may not descend into the pelvis in the last two weeks, as it normally does in first pregnancies.

We have now, at the thirty-sixth week, to decide whether induction should be performed. The answer to that is concerned with the size of the child, and, in particular, whether the head is depressible into the brim with firm pressure. With a foetus of normal stage development it *should* be—the rather flattened pelvis notwithstanding. Assuming normality in all else than the pelvis as described, the prospect is that, given time and patience on the part of everyone concerned, delivery at term will be spontaneous, and that the prognosis for the mother and child is good—a plea for the natural forces of labour being given a fair chance.

I have purposely presented a marginal case with the focus of clinical interest on a form of pelvis which is not infrequently met with, and which has too often been regarded as, in itself, an indication for induction or even Caesarean delivery. It is an illustration, therefore, of how the beneficent purposes of ante-natal examination may be abused and lead to meddlesome midwifery.

ALBUMINURIA OF PREGNANCY

In some of the pamphlets, and even in some of the recognized textbooks, it is stated or implied that if this condition is discovered ante-natally in a woman who subsequently dies of eclampsia it is a disgrace to the practitioner or to the institution concerned; that, with all we now know of the toxaemias and their evil companion-conditions, the item eclampsia should be caused to disappear from the list of factors contributing to the total of maternal mortality. Now this is just exaggerated propaganda. It is a welcome fact that by careful observation and treatment a much larger proportion of our albuminuria cases do not so terminate, but, as I tried to show before, so long as our knowledge of the nature of the toxaemias remains so limited, eclampsias will still be with us. The contrasts and surprises they afford render them profoundly interesting.

A few weeks ago I had under my care a young primigravida who had been admitted to the Maternity Hospital in a profoundly comatose state, having had several eclamptic seizures before and during a long ambulance journey from the country. She was cyanosed, the temperature about 102° F., the pulse of wretched quality and almost uncountable; the urine scanty and coffee-coloured, and giving a practically solid albumin reaction, with other derivatives of acidosis. The blood pressure approached 200 mm. She delivered herself of a dead-born child some hours after admission. At intervals the eclamptic fits continued. So far as was possible routine treatment was given, including colon wash-outs and moderate doses of morphine. I demonstrated this case to the students as one with hopeless prognosis. In a few days, however, we met again at her bedside, and the clinical picture was a very different one. Some mental hebetude remained, but was rapidly clearing. The pulse, temperature, and blood pressure were much reduced. The urine was of fair quantity, and the albumin reaction much less marked. Thence onward recovery was uninterrupted.

In contrast to this was a previous case, another young primigravida sent in from the ante-natal clinic when about five months pregnant, with albuminuria—no previous history of scarlet fever or other illness likely to have caused nephritis. There was no oedema, no headache, no dimness of vision. Temperature and pulse were normal. The albumin reaction was moderate, and was the only abnormality detected in the urine; under low diet, aperients, and diuretics this cleared up, and the patient was allowed to return home and to report at the clinic. She was readmitted two months or so later with a recurrent albuminuria, and again responded, though not so completely, to similar treatment. In the course of a week or so adverse symptoms appeared, and developed in number and degree until she presented the typical picture of pre-eclamptic toxaemia. Induction was effected with no specially untoward incident; but, notwithstanding the employment of anti-eclamptic treatment and regimen in full measure, with skilled nursing, the dreaded seizures supervened and continued in increasingly rapid sequence until the patient died.

What may be the essential difference between cases, so similar clinically and so different in their outcome, we may hope that one day the biochemists will tell us.

HEART DISEASE AND PREGNANCY

The fact that normally slight dilatation and hypertrophy of the heart occur during pregnancy is sufficient indication that where the association exists with a damaged heart some anxiety must necessarily be felt. While it is happily true that the majority of the cases, with care, win through, there are others in which the closest observance of careful treatment is essential before, during, and after labour. The order of gravity of cardiac default associated with pregnancy is commonly accepted to be as follows: rheumatic myocarditis, aortic regurgitation, mitral stenosis, and mitral regurgitation. The most critical phases of test are the acme of labour pains; the profound circulatory adjustment called for on the delivery of the child, and the completion of the third stage; and the more steady strain of the early puerperium. The case I refer to under this heading especially illustrated the difficulty, so often experienced, of deciding as to the advisability of inducing labour.

The patient was a primigravida, aged 27, giving a history of having had chorea when she was 12 years old and pneumonia when 23. On admission she was four months

pregnant, and complained of breathlessness on exertion, such as walking upstairs, during the previous four weeks. She had unmistakable mitral stenosis, with a few extrasystoles, but no fibrillation—the pulse 120 and of indifferent volume and tension—no oedema, and no liver enlargement. She responded satisfactorily to treatment, which included complete rest, light diet, aperients, 10 minim doses of tinct. digitalis, sometimes combined with 5 grains of sodium bromide, and was allowed, after six weeks in hospital, to return home with strict injunctions as to rest and suitable regimen.

She returned to hospital in her thirty-fourth week. The general condition was fair—pulse 94, no auricular fibrillation; but there was some oedema of the legs, and she also complained of a recurrence of the breathlessness on even slight exertion. Under similar treatment, including 10 minims of tinct. digitalis every six hours, the oedema cleared up in a few days and, all things considered, her condition once more became satisfactory.

Although there was no indication for it from the pelvic side, I decided to induce labour mainly for two reasons: to take advantage of a favourable phase, and to avoid the possibility of a prolonged strenuous labour. Watson's medical method failing, as it so often does, bougies were introduced under general anaesthesia. The reaction was very unfavourable, and in the course of twenty-four to thirty-six hours most of the signs and symptoms of cardiac distress appeared —pulse 120, fibrillation, precordial pain, oedema, cyanosis, dyspnoea. But labour pains came on and were accelerated by small doses of pituitrin. Large doses of digitalis again controlled the pulse, reducing it to 80 a minute. The head being now well into the pelvis, forceps delivery under anaesthesia was effected, and was followed by a rather prolonged third stage, but with no undue haemorrhage. The 5 lb. infant survived, and the mother achieved a remarkable rally in three days, with a pulse of 92 and a sense of comparative well-being. A relapse followed, and again a still more marked recovery, only to be followed by a further relapse on all points, to which, on the eighth day, she succumbed.

The problem is, would this patient have had a better chance of pulling through if I had decided to allow her to go to term? In such a case it is, at best, a question of chances either way, but my impression is that the question should be answered in the affirmative.

Tumours Complicating Pregnancy

My final problem case is concerned with tumour conditions complicating pregnancy.

A farmer's wife, accustomed to the strenuous duties of her outdoor occupation, and pregnant for the first time at the age of 40, was sent to me by a country practitioner with the statement that the pregnancy was advanced to about the sixth month, and appeared to be complicated by a multinodulated fibroid condition of the uterus; that the patient and her husband were very anxious to have a living child; and that, if deemed to be indicated, they would agree to the performance of Caesarean section at term.

I concurred in the tentative diagnosis. There had been no menorrhagia before the onset of pregnancy, but that is not uncommon where the multinodular variety of fibroid is predominant. The abdomen was very large, and occupied by many irregularly shaped lumps. The patient had habitually enjoyed good health. Her main trouble had always been constipation, the bowels being copiously evacuated at weekly or longer intervals.

I agreed also to the line of treatment suggested, particularly as per vaginam one or two of the nodules could be felt in the pelvic cavity with the cervix partly raised above them, a condition which could effectively block the transit of the foetus. I explained, however, that it was possible that as the pregnancy advanced to the later months the enlarging uterus might pull these nodules upward out of the pelvis, even to the extent of rendering a Caesarean operation unnecessary. I had no further opportunity of checking the diagnosis because, although the patient promised to come later for another examination, she did not do so, and the next I heard of the case was over the telephone after midnight from the doctor, to the effect that labour was well on its course and that, moreover, the patient was already on her way by transport to the nursing home. I arrived at the home just in time to supervise the completion of a normal breech delivery. As was to be expected the abdominal masses were post-natally much less in evidence.

The puerperium was normal, excepting that when on the third day the action of the bowels had, in addition to aperients, to be solicited by enemata, the nurse reported that the copious result per anum was supplemented by some faecal matter coming per vaginam. Much concerned, I made a most careful examination, and could find no trace of vaginal fistula communicating with the bowel. With that temptation to complacency to which clinicians sometimes yield, I expressed the view that the nurse must have been mistaken. She, being a competent and well-trained person, said no more, but no doubt held to her opinion, although the phenomenon did not again occur.

Some months later the patient came to see me complaining that the abdominal lumps were causing her much discomfort, and that she wanted them removed. Examination showed that though altered in shape and dimensions they were still present, and in due course I performed a laparotomy, and the nature of the problem was revealed. An enormous megacolon extended almost from flank to flank and from the pelvis to well above the level of the umbilicus. A well-involuted uterus with appendages complete was *in situ*, and most of the small intestines were packed away towards the left hypochondrium. The "tumours" were partly consolidated scybala and stercoliths—one of the latter was so large and hard that I deemed it proper to remove it by excision through the colonic wall—an analogue of Caesarean section to save the poor lady the pangs of its delivery *per vias naturales*.

A very interesting case; and though it may only be in the form of a postscript to its record, I think it is due to that nurse to say that her observation was surely correct, because the patient on further inquiry recalled that one of her early childish troubles was that fluid faecal matter in small quantities occasionally came per vaginam. A rare complication of this variety of megacolon is the persistence of a communication between the bowel and the cervical canal. The conditions obtaining in the early days of the puerperium would tend to increase its patency, and so permit of the passage of some of the fluid or semifluid contents of the bowel into the genital passage. The anatomical position of the opening would account for its non-discovery by ordinary vaginal examination.

TREATMENT OF "PERNICIOUS ANAEMIA OF PREGNANCY" AND "TROPICAL ANAEMIA"

WITH SPECIAL REFERENCE TO YEAST EXTRACT AS A CURATIVE AGENT*

BY

LUCY WILLS, M.A.Cantab., M.B., B.S.Lond.

MATERNAL MORTALITY INQUIRY, INDIAN RESEARCH FUND ASSOCIATION

(From the Haffkine Institute, Parel, Bombay)

The anaemias mentioned in the heading of this paper might well be described under the common title of tropical macrocytic anaemia; as, except for the accident of pregnancy, they are indistinguishable from one another, but can be separated from the numerous other anaemias occurring in the Tropics by the large size of the red cells, and by the presence, at some stage of the disease, of megaloblasts. In fact, these anaemias have the blood picture of Addison's or true pernicious anaemia, but differ from this condition in that the typical blood

* A full report of this work, and of the experimental work done in connexion with it, will appear in the *Indian Journal of Medical Research*.

picture is not associated with the other symptom-complexes which are so constant a feature of pernicious anaemia.[1] It is suggested, therefore, that in future these two anaemias be described together as tropical macrocytic anaemia.

TROPICAL MACROCYTIC ANAEMIA

This anaemia occurs in India as a distinct disease, frequently associated with pregnancy, and complicating, or complicated by, malaria, hookworm disease, and sprue. In an earlier paper[1] I dealt only with the idiopathic form, but further experience has led to the inclusion of the other types, as they all respond to the same treatment. They must, however, be distinguished from the severe small-celled secondary anaemias which frequently occur in the above-mentioned conditions, but which do not respond to the same treatment as the macrocytic type. The treatment of macrocytic anaemia is of considerable interest, and throws some light on the etiology of the condition. It is generally recognized that iron and arsenic, in whatever form they are given, are valueless—Chart VI shows the result of such treatment ; there is no increase in the haemoglobin or in the red cell count. This is the common experience of all workers in India who recognize this form of anaemia; they also find that other lines of treatment, successful in secondary anaemias, are equally useless.

LIVER TREATMENT

The discovery of the efficacy of liver in the treatment of pernicious anaemia suggested a new line of treatment, which has proved very successful for macrocytic anaemia. The pregnant cases respond more slowly than the others, but apart from this the results in the two conditions are identical. As in true pernicious anaemia, the presence of severe sepsis inhibits the stimulating effect of liver. After considerable experience in treating pregnant cases, I am of the opinion that, where the condition is severe, with a haemoglobin value under 20 per cent., it is essential to give large doses of liver extract (up to as much as the equivalent of 600 grams of fresh liver daily) if a rapid response is to be obtained ; the need of this is urgent, as such patients are likely to go into premature labour and die of heart failure. The first five days of treatment, during which a response cannot be hoped for, are thus always a time of great anxiety, and the death rate is likely to remain high until the women learn to report in the earlier stages of the disease. Even without the added strain of labour, many patients are admitted only to die of heart failure in the first twenty-four to forty-eight hours ; the immediate prognosis in cases with difficult breathing is very bad. Once delivery is over and the next two days are safely passed, the majority of patients will go into a natural remission without any treatment, so that in such cases it is very difficult to gauge the efficacy of any cure. Once a good response has been obtained, the dose of liver extract can be reduced, and, later, replaced by liver meat if the patient will take it.

As stated above, the reaction to liver extract seems exactly the same as in true pernicious anaemia, but the conditions in women's hospitals are such that it is generally impossible to follow the cases through as in other countries. Indian women of the hospital class are uneducated, very frightened, and suspicious. Few remain long enough for a cure, and many leave in a pitiful condition. The demands of their homes are very pressing, and neither they nor their relatives realize the importance of treatment ; if a woman can crawl she must attend to her home duties. Hence the records are frequently incomplete ; but in such cases as have been followed up, a typical reticulocyte response, of the same order as in pernicious anaemia, is obtained, and the same rapid return to a normal blood count and picture occurs.

VITAMIN TREATMENT

The results of liver therapy, though not easily brought into accordance with the previously expressed suggestion that a deficiency of vitamins A and C is causally related to the anaemia,[1] support the view that this is essentially a deficiency disease. However, it was decided to give a trial treatment with a concentrate of vitamin A (generously provided by Messrs. Lever Brothers), associated with a diet rich in vitamin C. At the same time experiments with monkeys were arranged along the same dietetic lines.

The treatment of patients with vitamins A and C proved a complete failure, and the animal experiments showed that a deficiency of these two vitamins was not concerned in the production of such macrocytic anaemias. The latter experiments did, however, strongly suggest that some deficiency in the vitamin B complex was significant as a causative factor, and that vitamin B had curative properties. Experiments with patients were therefore begun, and marmite, a form of yeast extract, was selected as the most suitable preparation. The extract was supplied in bulk by the Marmite Food Extract Company, and a sample was very kindly tested by Dr. Harriette Chick of the Lister Institute. She reported it to be rich in both the antineuritic vitamin B_1 and the antidermatitis vitamin B_2, and comparable with yeast itself ; a dose of 0.2 gram (dry weight 0.139 gram) was found to be sufficient for a rat's daily ration. The extract was given to the patients in drachm (1 drachm = 4 grams) doses, two, three, or even four times a day, the larger doses being used for pregnant women. It was found to cause nausea in a few of the very severe cases. This was overcome by giving it iced, and with the addition of crushed peppercorns ; it was always taken cold, as the patients preferred it so. In the report given below it will be seen that the marmite was as active as liver extract in causing regeneration of red blood cells.

Before the case histories are given, it must be noted that only female patients were treated, as the author was working in women's hospitals ; but similar anaemias occur in men, and this treatment is now being tried out on them also. The following histories cannot be taken at their face value, as the women do not give reliable information. A history of fever may mean nothing, as patients will assure you that they have fever when their temperature is consistently normal or subnormal. The mean red cell count for my series of healthy women of the hospital class in Bombay is 4.06 millions and the haemoglobin 69 per cent. (100 per cent. = 13.8 grams) ; these values indicate the degree of recovery which can be expected.

CASES TREATED WITH LIVER EXTRACT

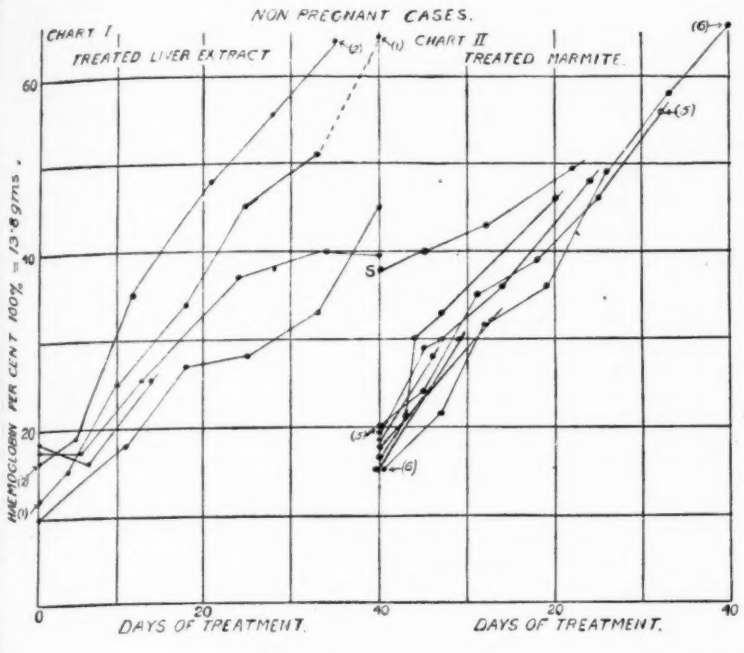
CASE I

Married woman, aged 27, 3-para, Hindu, strict vegetarian. Patient was confined five months ago ; for fifteen days before delivery she had fever and swelling of the extremities ; she improved for two months, but since then has had fever, increasing weakness, pallor, and oedema of the limbs. On admission she was semi-conscious, with a temperature swinging between 99° and 102° F. The extremities were oedematous ; there was no diarrhoea ; the urine contained a faint trace of albumin ; the Wassermann reaction was negative ; no ova were seen in the stools ; and later, a test meal showed the presence of free hydrochloric acid.

The blood count showed: red blood cells 450,000 per c.mm., haemoglobin 12 per cent., white blood cells 900 per c.mm.; there was anisocytosis, with very large cells, and some poikilocytosis ; megaloblasts were present. A reticulocyte count gave a percentage of under 1.

Treatment consisted of digitalis for the first week only, and liver extract (hepatopson) in doses equivalent to 250 grams of fresh liver daily. Clinical improvement was obvious in five days, and thereafter the patient made an uninterrupted recovery. Daily reticulocyte counts were not made, the

maximum response observed being 12 per cent. on the eleventh day. A blood count, after thirty-three days' treatment, showed: red blood cells 3,020,000 per c.mm., haemoglobin 55 per cent., and white blood cells 9,100 per c.mm., and the blood picture was normal; twenty-nine days later the red blood cells were 3,700,000 per c.mm. (Chart I, (1)).



CASE II

Married woman, aged 27, 1-para, Hindu, vegetarian. The patient was delivered five years ago; since then not pregnant. For four months she has suffered from fever associated with vomiting and oedema. On admission the patient was extremely ill, with a temperature of from 100° to 103° F. for the first six days; she also had a sore mouth, severe vomiting, a feeble rapid pulse, and a dilated heart, and she was very restless. The urine contained no albumin; there was very slight oedema. Later examination gave a negative Kahn reaction; ova were absent from the stools, and there was free acid in the gastric contents. A blood count taken on admission showed: red blood cells 820,000 per c.mm., haemoglobin 17 per cent., and white blood cells 5,000 per c.mm.; there was anisocytosis, poikilocytosis, and some polychromatophilia. Megaloblasts were present; very few reticulocytes were seen in the whole slide.

Treatment consisted of liver extract (hepatopson), equivalent to 250 grams of fresh liver daily, and later of Lilly's extract, equivalent to 300 grams fresh liver daily. Stimulants and glucose per rectum were given for the first few days. The temperature fell after six days, the vomiting ceased, and thereafter the patient made a rapid and uninterrupted recovery. After thirty-five days' treatment the blood count was: red blood cells 3,520,000 per c.mm., haemoglobin 64 per cent., and white blood cells 8,600 per c.mm.; the blood picture was normal. Daily reticulocyte counts were not done; and the maximum response observed was 8 per cent. on the twelfth day (Chart I, (2)).

The above two cases are typical of a series of non-pregnant cases treated with liver extract; further examples are shown on the same chart.

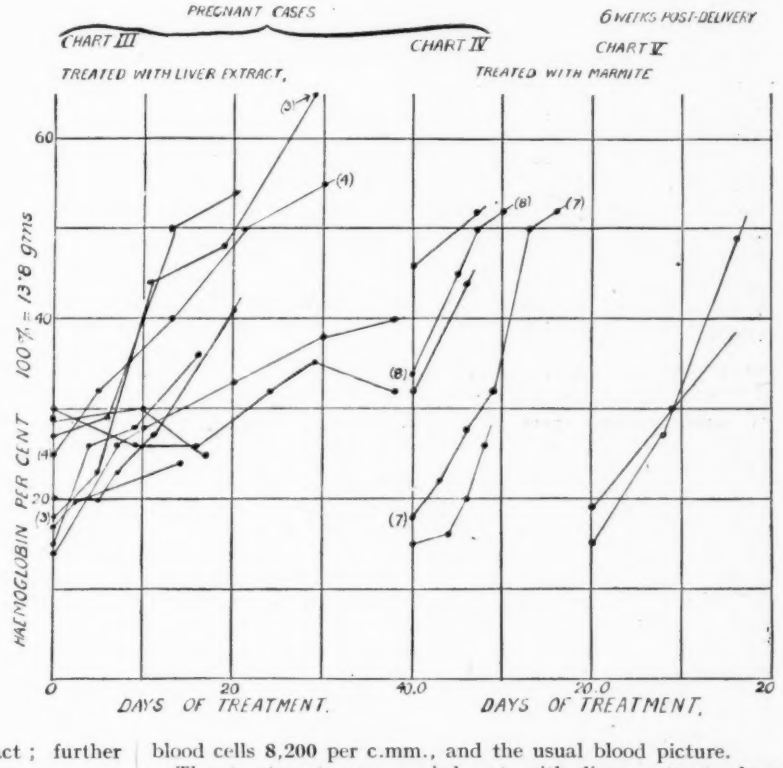
CASE III

Married woman, aged 21, primipara, six and a half months pregnant, Christian, and meat-eater. Patient gave a history of recurrent attacks of fever, probably malaria, since childhood; otherwise healthy, except for severe vomiting in the early months of pregnancy. For the last month there had been increasing weakness and fever. On admission she had severe anaemia, associated with great weakness, breathlessness, and moderate oedema of the extremities. She was very constipated; temperature was 99° F. The spleen was enlarged and hard. The urine contained no albumin; the Wassermann reaction was negative, and a few hookworm ova were found in the stools. The blood count showed: red blood cells 998,000 per c.mm., haemoglobin 18 per cent., white blood cells 11,200 per c.mm.; there was marked anisocytosis, a few megaloblasts, and a very few reticulocytes.

The treatment consisted of liver extract B.D.H. fluid extract) in doses equivalent to 700 grams daily, for nine days, and after that of half a pound of liver meat daily. Digitalis, 5 minims three times daily, was taken for the first few days. The result was an uninterrupted recovery. Thymol for hookworm was given after the red cell count had passed 2 millions. The maximum reticulocyte response was 39 per cent. on the ninth day. The final blood count on the thirty-third day of treatment showed: red blood cells 3,680,000 per c.mm., haemoglobin 66 per cent., and white blood cells 7,800 per c.mm. The blood picture was normal (Chart III, (3)).

CASE IV

Married woman, aged 28, 5-para, eight months pregnant, Hindu, vegetarian. The patient gave a history of one month's fever, weakness, and sore mouth. She was admitted with severe anaemia, great weakness, slight oedema, and a temperature of 100° F. The urine showed a trace of albumin. The Kahn reaction was negative. No ova were found in the stools. The test meal was negative for free acid, but the neutral chlorides were high. A blood count showed: red blood cells 1,080,000 per c.mm., haemoglobin 25 per cent., white blood cells 8,200 per c.mm., and the usual blood picture.



The treatment was carried out with liver extract alone (B.D.H. fluid extract) in doses equivalent to 250 grams daily. The temperature fell after fourteen days; the patient improved steadily, and was delivered at term of a healthy child. The maximum reticulocyte count observed was 12 per cent. on the fifteenth day, but the count was not taken daily. The final

blood count before delivery, after thirty-three days' treatment, showed: red blood cells 3,250,000 per c.mm., haemoglobin 55 per cent., and white blood cells 6,500 per c.mm. The blood picture was normal. After delivery, on the fifty-second day of treatment, the red cells had risen to 3,420,000 and the haemoglobin to 60 per cent. (Chart III, (4)).

Cases III and IV are typical of those complicated by pregnancy which responded well to treatment; but, as Chart III shows, there were others in which recovery was slower. At the time when the majority of patients were treated, the dose of liver extract given (for various reasons, partly that of expense) did not exceed the equivalent of half a pound of fresh liver daily. In my opinion this is not enough to produce a prompt rise in the count in all cases; and it is probable that many of them would have done better on the larger doses now used. It is also possible that minor degrees of sepsis or other complications which inhibit the response to liver were missed.

CASES TREATED WITH MARMITE

The number of cases of tropical macrocytic anaemia treated with marmite was not large, in all twenty-two, many of which could be followed up only for a short time. The results of the treatment were, however, so striking that I feel justified in reporting them—more especially as I am leaving India, and shall not be able to continue the work. Further, it is hoped that other workers will be encouraged to give the treatment a trial.

This series consisted of eight non-pregnant women, seven pregnant, two puerperal, and five who were delivered during treatment. The non-pregnant patients, with the exception of one who had a severe *B. coli* cystitis, with much pus in the urine and acute bronchitis as well (Chart II, s), were uncomplicated by sepsis; all responded rapidly and well to treatment (Chart II). The clinical improvement was as marked as the changes in the blood. Two cases are reported in detail below.

The seven uncomplicated cases, treated ante-natally, were unfortunately followed up only for a short time, the longest period being eighteen days; but the improvement in four of them with severe anaemia was amazing; clinical improvement (less oedema, easier breathing, return of appetite) was apparent on the third day, and improvement in the blood on the fourth day (Chart IV). Two of these are reported in detail below. Two others, both with red cell counts under a million, died undelivered on the second and fourth day of treatment. One died suddenly and unexpectedly, after showing signs of improvement; but the other, a patient with general anasarca and vomiting, had little prospect of recovery from the beginning, as she could not sleep for breathlessness or retain any nourishment.

The two puerperal patients, delivered six and eight weeks before admission, had been going downhill ever since. Both were admitted with red cell counts below a million and haemoglobin values below 20 per cent.; and both had severe diarrhoea. The one had a temperature swinging between 100° and 105°, for which no cause could be found other than the anaemia and associated diarrhoea. On marmite alone (one drachm four times daily) this patient made an uninterrupted and rapid recovery, showing a reticulocyte count of 39 per cent. on the eighth day of treatment. The other patient had a *B. coli* cystitis and recovered more slowly, the maximum reticulocyte response being only 15 per cent. on the eighth day of treatment—an example of the inhibiting effect of any septic focus.

The five cases delivered during treatment were less suitable for a trial of a new remedy; and, with the exception of one, they were all complicated and responded slowly. In spite of this, four showed a typical reticulocyte reaction.

CASE V

Married woman, aged 25, 2-para, non-pregnant, Brahmin, strict vegetarian. The patient gave a history of two or three months' intermittent fever and increasing weakness. On admission her temperature was 99.8° F., and pulse rate 124; she was very anaemic, breathless, and had slight oedema of the face and extremities. The heart was dilated; there was a systolic murmur. The mouth was clean. The liver was enlarged to one fingerbreadth below the costal margin, and was tender. The temperature persisted for the first twelve days of treatment. The urine contained a trace of albumin, which cleared later; no ova were found in the stools, and the Wassermann reaction was negative. There was no free acid in the gastric juice, but so much bile that the test was useless. A blood count showed: red blood cells 917,000 per c.mm., haemoglobin 20 per cent., white blood cells 5,100 per c.mm.; and there was marked anisocytosis with large cells; only a few reticulocytes were seen. The patient was very ill, and the condition of her heart caused much anxiety.

The treatment consisted of marmite, one drachm twice daily, for the first twenty days, and then three times a day to help the appetite. Stimulants, digitalis, and camphor were given when necessary during the first four days. After this the patient improved remarkably, but the temperature did not fall to normal till the twelfth day, after which she made an uninterrupted recovery. The maximum reticulocyte count was 18 per cent. on the twelfth day. The final blood count, on the thirty-third day of treatment, showed: red blood cells 3,333,000 per c.mm., haemoglobin 56 per cent., and white blood cells 4,700 per c.mm. The blood picture was normal (Chart II, (5)).

CASE VI

Widow, aged 25, nullipara, non-pregnant. Brahmin, strict vegetarian. Patient stated that she had been healthy till four months before, when she had an attack of fever lasting fifteen days, followed by intermittent fever. She had complained of pain and distension for the last month, and vomiting for the last eight days. On admission the temperature was normal and the pulse rate 120. She was very ill, with extreme anaemia, oedema of the face and extremities, and a rapid and feeble heart beat. She was constipated, the tongue was coated, and she vomited several times. The liver was enlarged four fingerbreadths below the costal margin, and was tender. The spleen was not palpable. The urine contained a trace of albumin, which cleared later; no ova were seen in the stools, and the Wassermann reaction was negative. In a single test meal there was no free acid in the gastric contents. The blood count showed: red blood cells 812,000 per c.mm., haemoglobin 15 per cent., and white blood cells 5,600 per c.mm.; anisocytosis and poikilocytosis were present, megaloblasts were seen, and there were 0.3 per cent. reticulocytes.

One drachm of marmite was given twice daily, and stimulants and digitalis for the first week. The temperature remained normal after the first two days, but the rapid pulse and abdominal pain remained for some little time. On the eighteenth day of treatment, after the blood had shown a good response, both red cells and haemoglobin having doubled their original value, the patient had a rigor and rise of temperature, and malignant malaria parasites were found in the blood film. Whether this attack was a relapse or was due to an infection in the ward it was impossible to say, but after two injections of 5 grains of quinine the patient had no further attacks while in hospital, and made a good recovery. The maximum reticulocyte count was 35 per cent. on the sixth day of treatment. The liver remained enlarged. A final blood count on the fortieth day of treatment showed: red blood cells 3,544,000 per c.mm., haemoglobin 66 per cent., and white blood cells 5,200, and the blood picture was normal (Chart II, (6)).

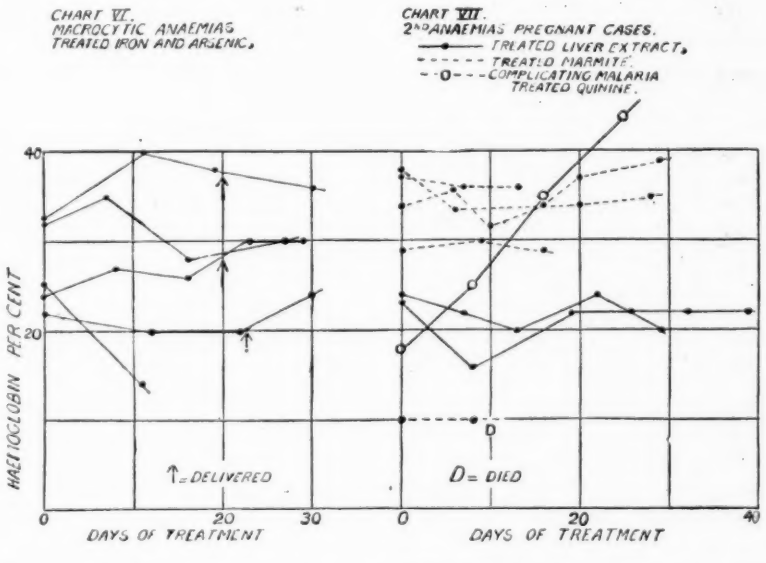
The two cases reported below represent two types complicated by pregnancy, the one typical of Bombay, with severe anaemia but only the moderate oedema associated with many severe anaemias, and the other of a type seen more frequently in Madras, with generalized anasarca as well as extreme anaemia. The latter variety is very

grave, and, admitted as they are in the last stages of the disease, the cases have a high mortality rate; the prognosis is particularly bad when a certain type of forced breathing is present.

CASE VII

Married woman, aged 20, first pregnancy, Hindu, but not a vegetarian. Patient gave a history of an attack of fever a year ago. She was six months pregnant, and had had diarrhoea for a short time. She was admitted with severe anaemia, marked breathlessness, oedema of the face and extremities, a rapid pulse, heart sounds poor with systolic murmur, dirty tongue, pyorrhoea, and severe diarrhoea, but no temperature. The spleen was enlarged; the urine contained no albumin; whip-worm ova were found in the stool. A blood count showed: red blood cells 990,000 per c.mm., haemoglobin 18 per cent., and white blood cells 8,200 per c.mm. Anisocytosis was marked, with very large cells; megaloblasts were present; very few reticulocytes were seen.

Digitalis, 10 minims thrice daily, was given for the first ten days, and, on admission, three powders, consisting of bismuth subnitrate 30 grains, salol 20 grains, and Dover's powder 15 grains. Marmite was given in doses of one drachm four times a day. For the first two days the patient was in a critical state, which was soon succeeded by a rapid and striking improvement. The diarrhoea stopped after five days, and the oedema cleared rapidly. The reticuloctye response was 56 per cent. on the fifth day. On the thirteenth day of treatment the blood count showed: red blood cells, 2,490,000 per c.mm., haemoglobin 50 per cent., and white blood cells 6,900 per c.mm.—an amazing response for a pregnant case. By the sixteenth day the haemoglobin was 55 per cent., and the patient feeling "perfectly well." (Chart IV, (7)).



CASE VIII

Married woman, aged 20, first pregnancy, sixth month, Hindu, but not a vegetarian. Patient was a coolie woman, and the only history she gave was of feeling ill and weak for seven days. On admission the most striking feature, other than the anaemia, was the generalized oedema; the whole body was swollen, and the labia stretched till they looked like tissue paper; there was free fluid in the abdomen, and moist sounds all over the chest. The patient was very breathless; the pulse rate was 64, and missing beats. There was marked pyorrhoea. The urine contained no albumin. Roundworm ova were found in the stool. The blood count was: red blood cells 1,300,000 per c.mm., haemoglobin 34 per cent., and white blood cells 8,100 per c.mm. Anisocytosis was marked, the cells being very large. A reticulocyte count gave a figure of 6 per cent.

The treatment consisted of marmite, one drachm four times a day, and nothing else. After two days of this the oedema was strikingly less; by the seventh day there was only a slight puffiness of the feet, and by the tenth day there was none. There was a reticulocyte response of 41 per cent. on the sixth day. On the tenth day the blood count showed: red blood cells 2,560,000 per c.mm., haemoglobin 52 per cent., and white blood cells 6,600 per c.mm. The cells were still large, and 5 per cent. of the reds were reticulocytes. Probably part of the initial rise in the blood count was due to the rapid decrease in oedema; but after all signs of this had cleared, the haemoglobin rose in two days from 45 to 50 per cent. (Chart IV, (8)).

DISCUSSION

The results recorded above suggest that in marmite we have a curative agent as potent as liver extract for the treatment of tropical macrocytic anaemia. The response of this disease to treatment with marmite is in all ways comparable with that produced by suitable doses of liver extract in the same condition or in true pernicious anaemia. Both extracts are active in this condition, even when it is complicated by malaria or hookworm, and without the treatment of the associated disease. This is in marked contrast with their complete inactivity in the secondary small-celled anaemia that so frequently complicates these infections (Chart VII). The fact that the two extracts are active in macrocytic anaemia raises the question of their etiological significance. The condition, both in its clinical manifestations and in its distribution, resembles a deficiency disease. The frequency and severity in pregnancy, the marked improvement that follows delivery (as in the case of deficiency osteomalacia), together with the frequent association of the disease with others that already lay a strain on the haematopoietic system, all suggest that some deficiency is the underlying cause. The geographical distribution is also suggestive, the regions chiefly affected being India, the Malay States, China, and the West Coast of Africa; the possibility of a infective agent cannot, however, be ignored.

If one considers the two extracts, the question of the nature of any common constituent factor at once arises. The work of Cohen,[2] Castle,[3] and their co-workers suggests that in liver extract it is a protein breakdown product that is active, and that in true pernicious anaemia it is some defect in the gastric function which leads to a failure of absorption of this product. In the tropical anaemia there is apparently no failure in gastric function.[1] It is possible, however, that the Indian diets, which are so markedly deficient in protein, especially animal protein,[4] may be deficient in this essential product or its precursor, and that the protein of yeast, known to be of good biological value, or its breakdown products, in the marmite supplies this want. The fact that the condition is so frequent among the better-to-do classes and among Mohammedans,[5] who are meat-eaters, would suggest that a protein deficiency is not the underlying defect.

Marmite is, however, known to be a rich source of the B vitamins, and so is fresh liver meat; commercial liver extract is also a very potent source of vitamin B_2, but it contains very much less of vitamin B_1. For a rat the minimum doses of liver extract for the two vitamins stand in the relation of even less than 1 to 10 (Chick, verbal communication); liver extract cannot therefore be called a rich source of vitamin B_1. The cases of anaemia seen in Bombay have no symptoms suggesting any marked deficiency of B vitamins, and beri-beri is practically unknown in the town. In Madras beri-beri occurs in all the rice-eating districts of the south and east coast, and endemic dropsy is also found in certain districts.

The frequent association of extreme oedema with the severe anaemia, and the fact that both respond so readily to treatment with marmite, are undoubtedly important. The question must, however, remain unsettled until further work can decide the common factor in the two extracts which is active. At present it is only possible to state that in marmite, and probably in other yeast extracts, there appears to be a curative agent for this dread disease which equals liver extract in potency, and has the advantage in India of being comparatively cheap and of vegetable origin.

In conclusion, it is a pleasure to acknowledge the help given by the staffs of the Cama and Albless Hospital, Bombay, and the Caste and Goosha Hospital, the Government Maternity Hospital, the Raja Sir Ramaswami Mudeliar Lying-in Hospital, and the Christina Rainy Hospital, Madras, who allowed me all facilities and showed the greatest interest in the work. The work was carried on as part of the Maternal Mortality Inquiry of the Indian Research Fund Association, which defrayed the expenses.

REFERENCES

1 Wills, L., and Mehta, M. M.: *Indian Journ. Med. Research*, 1930, xvii, 777.
2 Cohen, E. J., Minot, G. R., Allen, G. A., and Salter, W. J.: *Journ. Biol. Chem.*, 1928, lxxvii, 325.
3 Castle, W. B., Townsend, W. C., and Heath, C. W.: *Amer. Journ. Med. Sci.*, 1930, cliii, 305.
4 Wills, L., and Talpade, S. N.: *Indian Journ. Med. Research*, 1930, xviii, 283.
5 Balfour, M. I.: *Indian Med. Gazette*, 1927, lxii, 489.

THE DIAGNOSIS OF URAEMIA

BY

A. ARNOLD OSMAN, D.S.C., M.R.C.P.
PHYSICIAN TO QUEEN MARY'S HOSPITAL; CONSULTING PHYSICIAN TO ST. ALFEGE'S HOSPITAL (L.C.C.)

AND

HAROLD G. CLOSE, M.B., B.S.
CLINICAL ASSISTANT, QUEEN MARY'S HOSPITAL; GRIFFITHS DEMONSTRATOR OF PATHOLOGY, GUY'S HOSPITAL

There is perhaps no condition in medicine which so frequently gives rise to difficulties and mistakes in diagnosis as that known as uraemia. This is partly due to loose definition and partly also to the fact that the manifestations included under the term, even when it is used in its strictest sense, are so varied as to simulate from time to time many other diseases. During the past twelve months, for example, cases have been seen in which, on clinical grounds, the following diagnoses were made: encephalitis lethargica, cerebral tumour, Addison's disease, pernicious anaemia, septicaemia, and leukaemia. A subsequent estimation of the blood urea, however, showed the true nature of the condition, which was confirmed at necropsy.

Now although many cases of chronic renal disease give no definite history of onset, and remain undetected for many years, all those mentioned above had had at least slight albuminuria; and uraemia, if considered at all, had been excluded on account of the absence of certain signs and symptoms generally considered necessary for this diagnosis. The absence, for example, of such symptoms as a high blood pressure, a hypertrophied heart, retinitis, foul tongue, the comparative youth of the patient, or even the small amount of albumin in the urine, had been regarded as making a diagnosis of uraemia due to chronic nephritis unlikely to be correct. The object of this paper is to point out the advantages of using the term uraemia in a more restricted sense than is usual; to emphasize certain clinical features which are of importance in the diagnosis, and which experience has shown are not sufficiently appreciated; and to bring forward a method of determining the blood urea which can be readily applied by anyone without laboratory experience or facilities.

DEFINITION OF URAEMIA

Strictly, the term uraemia should be applied only to those signs and symptoms which arise from, or at least are invariably associated with, defective elimination on the part of the kidneys; whether this be due to primary disease of these organs, a disturbance of their function secondary to disease elsewhere in the body, or to mechanical obstruction to the flow of urine—in fact, to those symptoms arising from an insufficient depuration of the blood by the kidneys. The word urinaemia is sometimes used to describe the results of mechanical obstruction to the urinary flow, but as the symptoms of this condition are identical with those of true uraemia as defined above it will not be employed here. It is true that none of the actual products of urinary retention has been proved to be the cause of the symptoms, but it is equally true that the accumulation of some or all of them in the blood generally leads to a definite train of symptoms to which alone the term uraemia is strictly applicable. Uraemia, therefore, can and does occur quite apart from Bright's disease. The term as commonly used includes many symptoms of this latter disease which are not always or necessarily associated with renal failure as shown by nitrogen or dye retention or by diminished concentrating power of the kidneys. Particularly is this the case with regard to the symptoms of high blood pressure and cardio-vascular disease. These are often erroneously included under the term uraemia; but, as pointed out by Strauss, Ascoli, Widal, Volhard, Fishberg, and others, it is of great practical importance to differentiate clearly between those symptoms of pseudo-uraemia and those of true uraemia. As defined above, uraemia is seen in its most typical form in cases with mechanical obstruction to the flow of urine and in cases of chronic nephritis in the young; for although uraemia, as shown by nitrogen retention, etc., is frequently present in older subjects, death in these cases more often results from accompanying cardio-vascular disease.

SIGNS AND SYMPTOMS OF URAEMIA

The chief signs and symptoms of uraemia may be conveniently considered under the headings of the main systems of the body involved. The onset is usually insidious, but may be comparatively rapid, especially in acute nephritis, mechanical obstruction of the urinary tract, and in cases of chronic nephritis complicated by intercurrent infection, by bilious attacks, and following general anaesthesia. The initial symptoms vary, but physical and mental exhaustion, anorexia, vomiting, dyspnoea on exertion without signs of cardiac failure, marked anaemia, and progressive loss of weight are all common.

Nervous System

Mental apathy and drowsiness, quite apart from coma, are frequently present, and may be the only prominent symptoms for many weeks. They may be so marked as to lead to a diagnosis of encephalitis lethargica. If, in addition, there is some choking of the discs with a normal or only slightly raised blood pressure, as sometimes happens, cerebral tumour may be diagnosed. In some cases, on the other hand, there is intense mental activity, worry, and inability to concentrate, sometimes accompanied by a vague but insuperable feeling of alarm. Insomnia may be intractable, despite marked physical weakness and sense of exhaustion. Muscular weakness is often extreme. In one case seen recently it was the first symptom noted, and it increased in intensity for nine months before any other symptoms occurred, when anorexia was complained of. The blood urea was then 220 mg. per 100 c.cm. If at the same time the blood pressure is low or not much raised Addison's disease may be simulated. Most

of the various psychoses met with in these cases are probably due to cardio-vascular disease of the brain and not to uraemia. Muscular twitchings, especially of the extremities, are a frequent and important sign. They vary from fine fibrillary twitchings, confined to a few muscle groups, to comparatively coarse, jerky movements, often of the extensor muscles, occurring at fairly frequent intervals. Some patients complain bitterly of these twitchings and jumpings.

A healthy-looking man, aged 39, noticed that for the past six months he had been nervy and jumpy when doors were banged, etc. He was known to have had a trace of albumin in the urine for some years, but no casts had ever been found. Examination of the heart, blood pressure, and retinae showed nothing abnormal. While the pulse was being felt, however, an occasional slight involuntary jerking of the wrist and fingers was noticed. Because of this, a specimen of blood was taken, and the blood urea was found to be 190 mg. per 100 c.cm.

Muscular twitchings, then, are often a valuable clinical sign. Headaches are not a prominent symptom of true uraemia. They are often absent entirely, but when present are rarely of the intense variety met with in hypertension and vascular disease of the brain. The pupils may be contracted but exhibit no constant variation from the normal. Finally, it should be noted that vertigo, amaurosis, retinitis, transient pareses, hemiplegia, and, most important of all, convulsions, are none of them necessarily manifestations of true uraemia, but are probably symptoms of coexisting hypertension and vascular disease. In uncomplicated uraemia, in fact, they are generally absent.

Cardio-vascular System

It cannot be too strongly emphasized that a raised blood pressure is not an essential sign of uraemia. It does not generally occur as a result of urinary obstruction, and is frequently absent in cases of chronic glomerular nephritis (chronic interstitial nephritis or secondary contracted kidney) in young persons, and in chronic ascending nephritis or pyelonephritis in older people. Absence of cardiac hypertrophy at necropsy confirms these statements in many cases. Again, in cases of uraemia associated with chronic nephritis in which the blood pressure has previously been raised, a terminal fall of the pressure, not obviously due to heart failure, often occurs. This decrease in the pressure may take place days, weeks, or even months before death, and is often an ominous sign. It is important, therefore, to remember that an increased blood pressure is not always present in uraemia, even when due to chronic nephritis ; and, in our experience, the diagnosis may be missed and the blood urea not estimated, "because the blood pressure is not raised." The only cardio-vascular disorders which might possibly be attributed to uraemic toxaemia are heart failure and perhaps pericarditis. Cardiac failure will, of course, accentuate or precipitate a fatal uraemia in patients in whom the kidneys are already damaged. One of us (A. A. O.) has often observed dropped beats, pulsus alternans, and sudden cardiac death, sometimes in cases of prolonged anuria due to various causes in patients in whom there was no reason to suspect previous cardiac disease. These cases, in fact, strongly suggested a toxic myocarditis, possibly caused by retained urinary products.

Alimentary System

Far too much importance is generally paid to the appearance of the tongue. It is described by some as dry, red, cracked, and glazed ; by others, as covered by a brown or greyish exudate. Even taken into consideration with other symptoms, the appearance of this organ as an aid to the diagnosis of uraemia is practically without value. Only recently a case was seen at necropsy in which no blood urea estimation had been performed (a few hours after death the blood urea was 400 mg. per 100 c.cm.) and the diagnosis was missed although albumin had been found in the urine. The tongue looked normal, and it was thought that the patient, a girl of 16, was too young to have chronic interstitial nephritis. The kidneys were very small and granular.

A urinous or ammoniacal odour of the breath and stomatitis occur so late in the disease as to be without practical diagnostic importance. Bleeding of the gums and loosening of the teeth are also late manifestations, but are sometimes of diagnostic significance. Gradual loss of appetite over a period of weeks or months may sometimes be uraemic in origin. Nausea and vomiting frequently occur and may be persistent, leading to marked thirst and serious dehydration, very large quantities of fluid being lost in this way. Vomiting, with or without abdominal pain, may be the first symptom, and the chief difficulty arises in diagnosing this from the vomiting of high intestinal obstruction. In both, the blood urea may be very high, and the diagnosis turns chiefly on other tests. In uraemic vomiting, for example, the high blood urea is associated with a low plasma bicarbonate and a diminished concentration of urea in the urine. In the uraemia of intestinal obstruction the plasma bicarbonate tends to be increased (alkalosis) and the urinary urea output normal. Either constipation or diarrhoea may be present, but neither is of diagnostic importance.

Respiratory System

The respiratory symptoms of uraemia are not sufficiently distinctive to be of much value in diagnosis. Kussmaul breathing may occur, but differs in no way from that found in other diseases in which a terminal acidosis is the rule. The hissing respiration said to be characteristic of uraemia is a comparatively rare phenomenon, but is of some diagnostic value in the differential diagnosis of coma due to cerebral haemorrhage in which dyspnoea, if present, is accompanied by stertor. Increasing dyspnoea, especially on exertion, may be the earliest symptom, even in cases without heart failure or marked anaemia. Persistent hiccup is also a late manifestation, though not very common.

The Blood

Profound anaemia is sometimes the earliest manifestation of chronic progressive uraemia, and may lead to a tentative diagnosis of pernicious anaemia, leukaemia, or, when accompanied by fever and purpura, septicaemia. The anaemia is of the secondary type, and extremely low figures for red cells and haemoglobin may be encountered. Purpura is not an uncommon sign, though, in our experience, it only occurs late in the disease, and generally when the blood urea is at least 150 to 200 mg. per 100 c.cm. The platelet count is usually normal. Purpura and bleeding gums in an adult with even a trace of albumin in the urine should always suggest the possibility of uraemia.

The Skin

Occasionally a peculiar yellowish-brown waxy appearance of the skin gives rise to suspicion of uraemia. If there is also some puffiness of the eyelids a diagnosis of pernicious anaemia or myxoedema may be made, but in the majority of cases there is no characteristic tint or colour of the skin and no rash or eruption occurring often enough to be of diagnostic value. Pruritus may occur, but is not characteristic.

Progressive loss of weight not due to other ascertainable causes should excite suspicion and call for an investigation of the blood.

AGE INCIDENCE OF URAEMIA IN CHRONIC NEPHRITIS

It is not generally realized that fatal uraemia due to renal insufficiency (for practical purposes due to chronic nephritis) occurs chiefly in the young, and not in the elderly, a point which experience has shown to be a frequent stumbling-block in diagnosis.

Thus, of the last nine patients seen and diagnosed in hospital as chronic glomerular or chronic interstitial nephritis, and in whom small granular kidneys were found at necropsy, only three were over 25 years of age. The ages in these cases at death were 25, 25, 46, 19, 13, 20, 32, 37, and 20 years. Again, the average age at death of fourteen patients with chronic glomerular nephritis in whom the diagnosis was confirmed at necropsy, and who had during life a high blood urea (over 100 mg. per 100 c.cm.) but a systolic blood pressure under 150 mm. Hg, was found to be 27 years. In a further group of fourteen cases of chronic glomerular nephritis, confirmed at necropsy, with a comparatively low blood urea (under 100 mg. per 100 c.cm.) but with a systolic blood pressure of over 150 mm. Hg, the average age at death was found to be 47 years. Using the same criteria—namely, a blood urea of over or under 100 mg. per 100 c.cm., and a systolic blood pressure of over or under 150 mm. Hg—we analysed 100 consecutive post-mortem records from Queen Mary's, St. Alfege's, and Guy's Hospitals, of cases of chronic interstitial nephritis (primary and secondary contracted kidneys). These were divided into three groups.

(*a*) Uraemia = blood urea over 100 mg. per cent., and blood pressure under 150 mm. Hg.
(*b*) Hypertension = blood urea under 100 mg. per cent., and blood pressure over 150 mm. Hg.
(*c*) Mixed cases.

There were 20 cases in Group (*a*), 32 in Group (*b*), and 48 in Group (*c*). Of the 20 cases in the uraemic group the average age at death was 29 years, whilst the average age at death of the 32 cases in the hypertensive group was 47.5 years. Of the 20 subjects in the uraemic group, 12 were under 25 years of age, and of the 32 cases in the hypertensive group only 2 were under 25 years of age.

Clearly, in chronic glomerular nephritis death from true uraemia occurs more often in the young, the elderly succumbing chiefly to hypertension and cardio-vascular disorders. In the majority of cases, of course, some degree of renal insufficiency, hypertension, and cardio-vascular disease are all present. Incidentally it is worthy of note that of the nine cases referred to above only three were known to have suffered previously from renal disease of any kind, the other cases giving a history of weakness and malaise of a few weeks' duration only.

ESTIMATION OF BLOOD UREA

From what has been said above regarding the diversity of the clinical signs and symptoms of uraemia, and from our own experience of considerable numbers of such cases, we have been forced to the conclusion that, on the whole, laboratory methods are of more value in the diagnosis of this condition than the most extensive clinical experience, though a combination of both is the ideal. Reliance on purely clinical evidence alone, which, of course, includes a qualitative examination of the urine, will only lead to a correct diagnosis of uraemia in a proportion of cases. This in no way diminishes the importance of the most thorough clinical examination in every case. While uraemia due to true renal insufficiency is, as pointed out later, not necessarily present in every case in which a raised blood urea is found in association with albumin in the urine, a blood urea determination is, nevertheless, by far the most useful single test as an aid to diagnosis, and, taken in conjunction with the clinical features, will suffice in the majority of cases, though other laboratory tests may be necessary in special instances. This being so, and the condition itself being by no means uncommon, it is desirable that every practitioner should be able to estimate the blood urea for himself. In fact, this simple procedure should be regarded as just as essential to a medical man as the measurement of the blood pressure, a retinoscopic examination, or doing a blood count; the latter two, incidentally, requiring greater skill in execution and experience in interpretation than a simple estimation of the blood urea.

For these reasons we have devised a method, or rather a modification of the well-known method of Twort and Archer,[1] which is suitable for general use, and does not necessitate the use of elaborate apparatus and laboratory accommodation. The principle of the method is the conversion of urea to ammonia by the action of urease on the urea. Trichloracetic acid has been substituted for the tungstic acid used in the original method. An important feature is that venepuncture is avoided, as the estimation can be carried out on a single drop (0.1 c.cm.) of blood obtained by pricking the lobe of the ear or the finger. The estimation, which is performed by colour comparisons with standard colour solutions (thus avoiding the necessity for titrations, colorimeters, and calculations), can be carried out at the bedside, or the blood can be transported and the test performed at leisure. To carry out the complete estimation requires about forty minutes in all, but the operation may be interrupted, if necessary, at various stages. The degree of accuracy obtained is quite sufficient for all practical purposes, and can be increased by a simple alteration in the concentration of the solutions used. For most purposes it is only necessary to ascertain whether the blood urea is normal, or, say, twice or three times the normal. There is no point in knowing, for example, whether a given specimen of blood contains 80 or 85 mg. of urea per 100 c.cm.; it is sufficient to know that it is approximately twice the normal. With concentrations of urea over 200 mg. per 100 c.cm., a reddish precipitate appears, which makes it difficult to obtain accurate readings. This, however, is not of great practical importance, as the prognosis is uniformly grave with values of this magnitude and over. The method has been designed for use in general practice and for routine and emergency work in hospitals, but not for research purposes, for which the original method quoted above is more suitable.*

DETAILS OF THE METHOD

By pricking the finger or the lobe of the ear by means of the blood pipette 0.1 c.cm. of blood is obtained and added to 1 c.cm. of water in a test tube. A urease tablet is crushed and added to the contents of the test tube, which is then immersed in water in a water bath at 50° C. for fifteen minutes. To this 0.2 c.cm. of 20 per cent. trichloracetic acid is then added, and the mixture allowed to stand for ten minutes. It is then diluted with 3 c.cm. of water, and filtered through a piece of filter paper, previously well washed with water, into another test tube, until the volume of the filtrate is 5 c.cm. To three other test tubes 0.4, 1, and 1.5 c.cm. of the standard ammonia solution are then added, and the volumes made up to 5 c.cm. with water. To each of the four test tubes 1 c.cm. of Nessler's solution is then added, the contents are stirred, and are allowed to stand for two minutes. The resulting colour in the solution under test is then matched against a white background with the colours of the other tubes, which correspond to 40, 100, and 150 mg. of urea per 100 c.cm. of blood. Tap water is used throughout.

INTERPRETATION OF BLOOD UREA VALUES

The normal blood urea is generally given as 20 to 40 mg. per 100 c.cm. Values lower than this are often

* The necessary apparatus, etc., is contained in a convenient form in the "B.D.H. Ureamometer" made by British Drug Houses Ltd.

met with, especially in young fasting subjects. Low figures are also the rule in normal pregnancy (de Wesselow[2]). In elderly subjects the upper limit of the normal may be a little higher, and values of 50 or 60 mg. per 100 c.cm. are not necessarily to be regarded as pathological. Dehydration too, as after profuse sweating or residence in hot climates, may give rather higher values than normal. The protein content of the diet influences the concentration of urea in the blood to a considerable extent. Patients with chronic nephritis treated with a low protein diet may have a comparatively low or even normal blood urea. In spite of this, they may die from uraemia because the kidneys, although grossly disorganized, are able to deal for a time with a minimum load of urea, but not perhaps with other urinary constituents which are retained and may cause death. Generally such patients die from cardio-vascular accidents. It is important, however, to consider the diet when interpreting a blood urea value, from the point of view of either diagnosis or prognosis.

NON-RENAL CAUSES OF HIGH BLOOD UREA

A high blood urea, though indicative of uraemia, is not necessarily the result of disease of the kidneys, even if albumin is present in the urine. In heart failure, for example, the blood urea is often considerably raised and albuminuria is present ; but other tests, such as the urea concentration test, show that the kidneys are functioning normally in respect of urea clearance. A high blood urea is also often encountered in fevers of various kinds, in septic conditions, and in the dehydration following severe diarrhoea. The intractable vomiting and dehydration of high intestinal obstruction are often, as mentioned previously, associated with a high blood urea.

It is not sufficiently realized that many general anaesthetics cause a distinct increase in the blood urea, which may last for some time. In this connexion we are kindly permitted to refer to some recent but unpublished work of our friend Dr. J. W. Shackle. Estimations of the blood urea before, and, at intervals, after, various forms of general anaesthesia, but particularly chloroform and ether and C. and E. mixtures, showed that quite frequently a normal urea content was doubled, and often took several days to return to normal. Moreover, the older the subject and the higher the blood urea before operation the more pronounced were these effects. In our experience, general anaesthesia given to elderly subjects, without a careful preliminary examination to exclude latent renal disease, is a not infrequent cause of unexpected death, following even the most trivial surgical procedures. In fact, we have been so impressed by this as to consider it justifiable to assert that no general anaesthetic should be given to a person over 45 years of age, except in emergency, without a preliminary estimation of the blood urea ; especially if there is even a faint trace of albumin in the urine.

The value of blood urea estimations as a guide in the treatment of surgical affections of the kidneys and prostate, etc., is too well known to need discussion here.

We wish to acknowledge our indebtedness to the authorities at Queen Mary's, St. Allege's, and Guy's Hospitals for permission to make use of their records and post-mortem material, and to the physicians at these hospitals for those cases not under our own care. Our thanks are also due to Professor R. Donaldson and Dr. Arthur Davies, directors of the pathological departments at Guy's and Queen Mary's Hospitals, for laboratory facilities ; to the Medical Research Council for a grant for work of which this investigation forms a part ; and to British Drug Houses Ltd. for the care and trouble they have taken in carrying out our wishes.

REFERENCES

[1] Twort, F. W., and Archer, H. E.: *Lancet*, 1923, i, 1102.
[2] De Wesselow, O. L. V.: *Journ. Obstet. and Gynaecol. British Empire*, 1922, xxix, 21.

TWO CASES OF HAEMORRHAGIC PARATYPHOID FEVER

BY

R. M. WILLIAMS, M.B., B.S.LOND.

TEMPORARY ASSISTANT MEDICAL OFFICER, EASTERN HOSPITAL, L.C.C.

Early in February of this year paratyphoid fever broke out in Epping and its neighbourhood, and, at the suggestion of Dr. Shaw of the Ministry of Health, the London County Council decided to admit patients with this disease into some of its isolation hospitals. In all, some 240 cases were distributed throughout these hospitals. The origin of the epidemic was at first attributed to a contaminated milk supply. The history of the earliest cases, as far as can be ascertained from the case reports, dates back to December, 1930, and the age incidence varied from 2 to 78 years, the sexes being about equal in number. Examination of the stools and urine was performed two or three times on every patient admitted, and in every case showed the absence of the paratyphoid or typhoid organisms. The type of the disease, as evidenced by the temperature and the clinical symptoms, was very mild. The following is an account of the two deaths which occurred in the series.

HISTORY OF THE CASES

The two patients were brothers, William and Samuel, aged 11 and 13.

Past History.—Father dead. Mother resident in a mental hospital. Neither patient had any history of previous disease.

History of Present Illness.—Onset of the disease in both patients was on or about January 29th, 1931, with feelings of malaise in both about February 5th. Vomiting occurred on the following day in the case of William. Rose-red spots were present in both about February 7th. Samuel had haemorrhage per rectum on the 9th, previous to which he had had diarrhoea. Both boys were admitted together on February 11th in a delirious and febrile condition.

The point of interest in these two brothers was that they developed, practically at the same time, haemorrhages into the skin of the chest and abdomen.

CASE I

William, aged 11, was, on admission, an emaciated boy with sunken eyes. His colour was poor, pulse dicrotic, and temperature 99° to 104° F. Tongue was very dry and brown ; throat injected and clean ; sordes on lips and teeth ; stomatitis present. Chest sounds were normal. The spleen was not palpable, and there were two rose-red spots on the abdomen. He was doubly incontinent, and, at intervals, delirious.

Course of Disease.—Low, muttering delirium ; at times very restless ; gradual weakening of pulse and heart sounds. On February 20th definite haemorrhages were present under the skin of the chest, and, to a slight extent, of the abdomen. He became extremely ill and was delirious ; pulse was rapid and thready ; hurried respirations indicated some degree of lung congestion. Temperature was remittent. On the following day the congestion had extended ; the heart sounds became weaker (the first sound was almost inaudible), and the extremities cold. The petechial haemorrhages had not extended, but were very definite on the front of the chest and upper part of the abdomen. A blood count was done by Dr. Mair of the North-Eastern Laboratory at 3 p.m. on February 21st: white blood cells, 2,400 per c.mm. ; differential count—lymphocytes 50 per cent., polymorphonuclears 18 per cent., immature cells 32 per cent. Most of the polymorphonuclears showed a myelocytic type of nucleus, and platelets appeared to be present in the usual numbers. Death occurred three hours later.

Post-mortem Examination

Post-mortem report on February 23rd—forty-eight hours after death—by Dr. Mair of the North-Eastern Laboratory. Subject emaciated, petechial haemorrhages present over the chest and upper abdomen. Abdomen: No peritonitis. Nothing abnormal about the mesenteric glands. Congestion of glands

and vessels in the great, and also in the gastro-splenic, omentum. Stomach, suprarenals, pancreas, kidneys, and upper intestine appear fairly normal on macroscopic examination. Lower intestine: Acute congestion of the ileum. No ulcers. No swelling of Peyer's patches. Acute congestion of ileum opening into the caecum. Some little congestion of the ascending colon. Transverse, descending, and pelvic colon normal. Lungs: Left—broncho-pneumonia of both lobes, the lower more marked. Right—lower lobe consolidated, marked broncho-pneumonia; upper lobe partly consolidated and in same condition. Culture from gall-bladder contents grew a pure growth of *Bacillus paratyphosus* B Widal; serum agglutinates *B. paratyphosus* B in dilution of 1 in 2,500; *B. typhosus, nil.*

Microscopical Sections.—Lungs: Marked broncho-pneumonia; all the blood vessels are congested, many of the alveoli are filled with red blood corpuscles, and there is a good deal of blood pigment; other alveoli are filled with catarrhal cells and leucocytes, which appear to be chiefly mononuclear. The lumen of one of the smaller bronchi is filled with a catarrhal exudate. The vessels in the wall of this bronchus are congested and the connective tissue is very cellular, showing marked proliferation of the fixed tissue cells. Gram-positive cocci could be demonstrated in the exudate, but no Gram-negative bacilli. Spleen: The lymphoid follicles are smaller than normal, but are very cellular. They give the impression that there has been active proliferation followed by exhaustion. The spleen pulp is congested and cellular. Kidneys: The vessels are congested; the glomeruli are swollen and cellular; and there is some degeneration of the epithelium of the convoluted tubules.

It will be noted that in this case the post-mortem examination by itself would not have led to the true cause of death—namely, paratyphoid fever. The serum was markedly positive, and a pure growth of *B. paratyphosus* B was obtained from the contents of the gall-bladder.

CASE II

Samuel, aged 13, was admitted on February 11th and died on February 20th, 1931. On admission he was thin and dehydrated. Tongue furred; throat was slightly injected, but clean. Abdomen: Nothing abnormal. Heart sounds were normal, but weak. Lungs: No adventitious sounds. Faint, brownish, lenticular spots were present over the abdomen and legs. The patient appeared extremely ill and toxic. He was delirious and at times restless. Pulse was dicrotic, colour was very poor, and eyes were sunken.

Course of Disease.—Swinging temperature, with marked remissions (from 99° to 104.8°). Low muttering delirium, with intervals of great restlessness. The rash faded about February 16th; later, definite *subsultus tendinum* and carphology were present. There was some degree of cough. On February 20th, at 10 a.m., there was a very profuse epistaxis, and petechial haemorrhages were present over the chest, abdomen, and back, but not on the face, arms, or legs. Over the pressure points (sacrum, trochanters, and back of the chest) the punctate haemorrhages amounted to definite ecchymoses. The general colour of the affected area was a fairly bright scarlet. Condition of the patient became rapidly worse—typhoid facies, delirium, running pulse, etc.—and death occurred suddenly at 4.20 p.m.

Post-mortem Examination

A very emaciated subject. Petechial haemorrhages general over the chest, abdomen, and back; over the pressure points (sacrum, great trochanters, etc.) there were definite purpuric patches, some as large as a five-shilling piece. Lungs: Early broncho-pneumonia; haemorrhages present in the lung substance. Abdominal viscera: No peritonitis. Definite congestion of the lower eighteen inches of the ileum. In the caecum, and round about the base of the appendix, a fairly large ulcer was seen with intense injection around. Smaller ulcers were present in the ascending colon (size varied from a shilling to a five-shilling piece).

Sections (report by Dr. Mair).—Intestine: Section of ulcer at lower end of ileum; the mucosa shows marked inflammatory change as indicated by proliferation of connective tissue cells and infiltration with lymphocytes; over two areas in the section the epithelium has completely disappeared. Section of ileo-caecal valve: The mucosa shows similar changes; over a considerable area the epithelium has almost completely disappeared. Spleen: The lymphoid follicles are ill defined, and there is an increase in the number of lymphocytes in the sinuses. Kidneys: The glomeruli are swollen and cellular, with congested vessels; some of the convoluted tubules show cloudy swelling, and necrosis of the epithelium. Liver: The portal tracts show an increase in the number of the lymphocytes present, and in the centre of the lobules there is some atrophy of the liver cells. Lungs: The smaller bronchioles are filled with polymorphonuclear and catarrhal cells; the vessels are everywhere engorged with blood; there are areas with haemorrhages into the alveoli; and some alveoli also contain catarrhal cells and polymorphs. Numerous Gram-positive diplococci and streptococci are seen. No Gram-negative bacilli were found. The condition is one of early broncho-pneumonia.

COMMENTARY

Eruption of purpuric rashes in the typhoid group is considered very rare. The late occurrence of such rashes is referred to by Dr. E. W. Goodall. The differential diagnosis of this condition from the purpuras is simplified by the history, the high Widal, the facies, the extreme degree of toxicity, and, finally, by the fact that the blood platelets were present in the usual numbers.

The blood reactions and examination of stools and urine were carried out at the Northern Group Laboratory, North-Eastern Hospital. My thanks are due to Dr. Pereira, the medical superintendent, and to Dr. Mair, for their kind help and permission to publish these cases.

BIBLIOGRAPHY

Osler and McCrae: *The Principles and Practice of Medicine*, tenth edition, p. 30.
Taylor: *Practice of Medicine*, thirteenth edition, p. 87.
Rolleston, J. D.: *Acute Infectious Diseases*, second edition, p. 141.
Goodall, E. W.: *Text-Book of Infectious Diseases*, third edition, p. 301.
Ker: *Manual of Fevers*, second edition, p. 292.
Topley, W. W. C., and Wilson, G. S.: *The Principles of Bacteriology and Immunity*, p. 1002.

CONTACT GLASS OR CROSSED CYLINDERS FOR HIGH ASTIGMATISM

BY

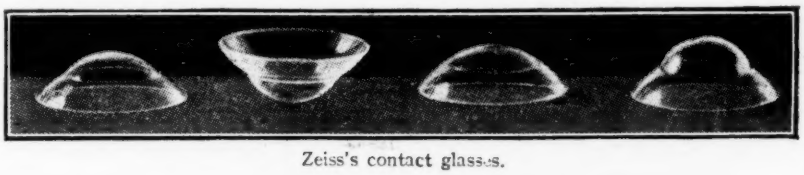
J. H. BEAUMONT, M.B., CH.B.NEW ZEALAND, D.O.M.S.

SENIOR CLINICAL ASSISTANT AND REFRACTIONIST, ROYAL WESTMINSTER OPHTHALMIC HOSPITAL; OUT-PATIENT OFFICER, ROYAL LONDON OPHTHALMIC HOSPITAL

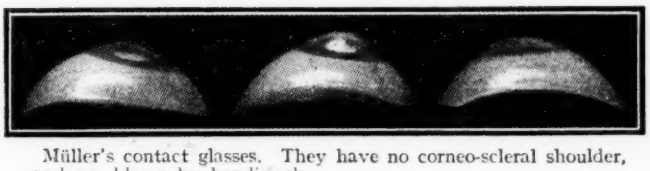
Contact glasses are glass shells worn on the eyeball to replace an irregularly refracting surface of the cornea by the regular curve of the glass. They are not so uncomfortable as one might imagine. They are applied by the surgeon using a rubber sucker attached to the glass shell, the concavity of which contains saline or Locke's fluid. Holocaine 2 per cent. may be used as a local anaesthetic. The patient's head is bent forward, the eyelids separated, and the contact glass is fitted on to the eyeball, care being taken to avoid air bubbles. Contact glasses have a scleral curve, and also a corneal curve of shorter radius, so that the glass is in contact with the sclera but is separated from the cornea by a layer of saline. At first they should be worn only for about an hour a day. Enthusiastic patients soon learn to fit them on themselves. Professor Heine of Kiel uses the contact glass grounded by Zeiss. In Vienna they say that for some cases the older contact glasses blown by Müller are better tolerated, as they do not fit so tightly. Contact glasses should not be worn at night, because when the eyes turn up during sleep the cornea may become abraded. They are practically invisible, and do not interfere with movements of the eyes.

These glasses may be used for cases of conical cornea, irregular corneal opacities, high astigmatism, high myopia,

and high hypermetropia, and in cataract cases after operation. They are of great value in certain corneal conditions in enabling the patient to have useful vision. But they may also be employed for any refractive error, and there are possibilities for contact glasses even in the realm of sport. I know of a Canadian who wears them while flying in an aeroplane. They may even be worn in place of ordinary glasses by actresses or people not wishing to wear spectacles. It has been claimed that their temporary application has been followed by permanent loss of small degrees of astigmatism. They have also been suggested in cases of muscle imbalance, and in other cases where difficulty is experienced with ordinary glasses. They cost about £5 each wholesale. In Vienna I saw six hospital patients wearing them with satisfaction. They were prescribed even in cases of chronic ulceration of the cornea which had just healed. Instead of irritating the cornea, as one would have expected, they actually protected it from recurrence of ulceration.



Zeiss's contact glasses.



Müller's contact glasses. They have no corneo-scleral shoulder, and are blown by handiwork

CROSSED CYLINDERS

The crossed cylinders to which I am referring are two cylindrical lenses at right angles instead of the ordinary combination of sphere and cylinder. If a +8 D. cylinder at 90 degrees is combined with a −8 D. cylinder at 180 degrees the effect is that of a +16 D. cylinder at 90 degrees combined with a −8 sphere. In the following case the ordinary sphere and cylinder combination could only bring the vision from counting fingers to 6/36, while the crossed cylinders brought the vision to 6/6; this indicates the possibilities of this method. While admitting the improvement, I would condemn their continuous wear, as they cause so much distortion, except in a very limited central field. On the other hand, they may be of great assistance in investigating other cases.

History of Case

L. T., male, aged 42, salesman. This man was injured in a molten metal accident in 1912. Owing to failing sight he had to give up his work ten years ago. The right eye showed extensive lens changes with much thickening of the anterior lens capsule, but the cataract was not mature. The vision of the right eye was 6/18 (not improved with lenses) and J. 12 with difficulty. The left eye had a corneal opacity covering the nasal half of the pupil. There was pseudopterygium with two strands of adhesion of the conjunction of the lower lid to the globe. The high astigmatism had evidently been caused by the contraction of scar tissue. His left vision was reduced to counting fingers, and was not improved by a mydriatic. The retinoscopy of the left eye was:

+9
+ −9,

and with two crossed cylinders +8 D. cylinder at 10 and −10.5 D. cylinder at 100 the left vision was brought up to 6/9 and J. 1. But owing to distortion he was unable to recognize me with this correction at the other end of the room. With a contact glass, 9 mm. corneal curve and 12 mm. scleral curve, he read 6/6 and J. 1, with a 7 D. sphere. All his astigmatism had disappeared, and he had much more useful vision.

I am indebted to Sir Richard Cruise for his permission to publish this case.

BIBLIOGRAPHY

Fick, A. E.: Eine Contactbrille, *Arch. f. Augenheilkunde*, 1888, xviii, 279.
Von Rohr, M., and Stock, W.: Über eine Methode zur subjektiven Prüfung von Brillenwirkungen, *Arch. f. Ophthalmologie*, 1912, lxxxiii, 189.
Rugg-Gunn, A.: *Lancet*, 1930, ii, 1067.
Heine, H.: Ibid., 1931, i, 631.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

INTERLOBAR EMPYEMA

Empyema between the middle and lower lobes on the right side is not very common.

The patient in this case was a woman of 40, admitted to hospital. She had, a month before, begun a pneumonia which involved the whole of the right lung and the base of the left. Her temperature, which was 103° F. at first, had come slowly down to 100°, but was never below that at night, and occasionally was higher. She looked very ill. There was an enlarged vein on the right side of the abdomen. The liver could be felt two fingerbreadths below the costal margin.

The right side of the chest moved very little. Resonance was diminished at the apex, and was less every interspace. From the fourth rib down there was complete dullness. Breath sounds were bronchial over the right upper lobe, bronchial with fine crepitations from the second to the fourth space, bronchial and less loud, with no crepitations, in the fifth and sixth spaces, weak, with a few crepitations, below that. Vocal resonance was increased in the third and fourth spaces, but absent below the fifth rib. The right back was dull from the spine of the scapula downwards. Fine crepitations and weak bronchial breathing could be heard from the spine of the scapula right down to the base. In the left chest there was rather puerile breathing, and some crepitations for three inches at the base. The heart's apex was only about half an inch outside normal.

I had a needle put into the fifth space about an inch outside the nipple line in the area where there was still fairly loud bronchial breathing, but vocal resonance had gone. Thick pus was withdrawn. At the operation next day quite a pint of pus was found between the middle and lower lobes of the lung.

Previous cases of this interlobar empyema that I have diagnosed have had very similar physical signs—a compressed middle lobe, with bronchial breathing, fine crepitations, and increased vocal resonance. In the fifth and sixth spaces external to the nipple line, where the empyema is nearest to the surface, and where the needle will strike pus, there is still quite loud bronchial breathing, but an absence of vocal resonance. At the back of the lung, crepitations can be heard down to the base. A rather deceptive point is that the heart is very little displaced, if at all, to the left, though the same amount of pus free in the pleura would displace it considerably. If undiagnosed this empyema may, with luck, open into the general pleural cavity, but more often it bursts into

a bronchus, in which case the patient may die of exhaustion from coughing up pus, or may develop a bronchiectatic condition, or, as in one case, a septic embolus may cause an abscess in the brain.

When operating it is as well to put in a long tube going up towards the hilum of the lung, as there is a considerable tendency for the lobes of the lung to come together and leave a pocket of pus near the hilum.

WALTER BROADBENT, M.A., M.D., F.R.C.P.
Senior Physician to the Royal Sussex County Hospital, Brighton.

SUBARACHNOID HAEMORRHAGE IN A CHILD

Children so often stand on their heads that one regards it as a normal exercise of childhood. The following case illustrates an unusual result. The mother of a girl, aged 10, gave me the following history.

For some time the child had not looked well, but had no definite illness. One morning she was very excited at the prospect of a party in the afternoon. As she has often done previously she stood on her head in an armchair. There was no history of any blow or knock on the head. On arrival at the party she played one game of "musical bumps" and then complained of feeling sick. She was sent upstairs to lie down, and vomited. She took no food at the party. On return home the vomiting continued. The sickness persisted all next day, and at the end of fifty-four hours I was asked to see the child. I found her in bed, complaining of sickness, with severe pain and aches in her back, and especially at the bottom of the spine. Also she had severe headache.

She is "an adenoid child" (tonsils and adenoids had been previously removed), and at this time she had some nasal catarrh. Her intelligence was good, and she was able to describe her symptoms very exactly. I provisionally diagnosed a meningeal type of influenza, and ordered a salicylate mixture. Next day I noted slight head retraction and a slight Kernig sign. There was some photophobia, and vomiting of a distinctly cerebral type. Intelligence good. Pain in back the same. Temperature not above 99° F.

On the third day after commencement of my attendance the head retraction became marked, also Kernig's sign and the photophobia. Pain in back less, but headache severe. No blurring of intelligence. Examinations of optic discs and ears were negative. I decided that it was time to perform lumbar puncture, and before doing so asked Dr. Lister to see the child. He agreed with me as to the need for a lumbar puncture, and she was removed to a nursing home. The provisional diagnosis was now probably onset of tubercular meningitis; but the very intelligent way in which the child described her symptoms made me reluctant to accept this diagnosis; I preferred to think the standing on the head had something to do with her condition. In the afternoon the lumbar puncture was done by Dr. Lister. The cerebro-spinal fluid showed blood uniformly, and we were able to make a diagnosis of subarachnoid haemorrhage of base of brain. Dr. Wordley examined the fluid and found no organisms, only blood distributed uniformly throughout it.

The progress to recovery was rapid. The patient had two severe attacks of nose-bleeding on two subsequent days. Headache and photophobia disappeared within two days, and all head retraction by the end of the third day. Within a week she was able to return home completely recovered, and there have been no after-effects.

MABEL L. RAMSAY, M.D., F.R.C.S.ED.,
Consulting Surgeon Gynaecologist, City Hospital and Public Dispensary, Plymouth.

OVARIAN PREGNANCY

On April 4th, 1931, a woman, aged 35, married for twelve years, who had never been pregnant, was seized with abdominal pain at 10 p.m. She was seen at her cottage in the country an hour later and found to have severe pain over the lower half of the abdomen, but was more tender and rigid in the left flank and iliac fossa. Her temperature was normal, pulse 78. She was brought into hospital forthwith and given one-third of a grain of morphine. Her condition being good and the diagnosis not clear, it was decided to watch her; the tentative diagnosis was either twisted ovarian cyst or ruptured ectopic pregnancy. Next morning her condition was good, temperature normal, pulse still 78; moderate tenderness and rigidity on left side as before. Examination showed an area of shifting dullness on the left side. Vaginal examination showed that there was no discharge, but the left fornix was full, and somewhat tender.

Menstruation had been quite regular all her married life, but her last period, which had come on a fortnight previously, was one week late; otherwise it was normal, lasting a week and clearing off a week before the attack of pain.

On the diagnosis of ruptured ectopic gestation, she was opened. The abdomen was half full of blood, the uterus was slightly enlarged, and both tubes were normal; but the left ovary was a good deal enlarged, congested, and had a ragged rent about one and a quarter inches long. The specimen was sent to Professor Tanner Hewlett, who reported as follows:

"The greater part of the ovary is occupied by a cyst the size of a walnut. . . . At the 'tube' end of ovary a haemorrhagic area is present, and sections show fibrous tissue and haemorrhages, together with large degenerate cells. These, I think, are decidual cells, and the condition therefore is one of ovarian pregnancy."

Two years ago I had a very similar case in which the signs and symptoms of early pregnancy were present, and the sudden onset of pain with acute abdominal symptoms, combined with the discharge of blood from the cervix, compelled the diagnosis of ruptured ectopic gestation. At operation the abdomen was full of blood, the uterus somewhat enlarged, both tubes normal, but one ovary was much enlarged, with a ragged bleeding tear in it leading to a cavity the size of a small walnut. It seemed obvious to my colleagues and myself that this was a ruptured ovarian pregnancy, but on mentioning the case at a discussion following a paper read at a Branch meeting, I was informed by a gynaecologist from a London teaching hospital that ovarian pregnancy was such a rarely recorded condition that this case could not be accepted as such in the absence of a microscopical examination. I regret this was not made, but I was ignorant of the rarity of the condition.

Neither patient gave a moment's anxiety after the operation.

Sherborne, Dorset. T. MACCARTHY, M.R.C.S., L.R.C.P.

Reports of Societies

B.C.G. IMMUNIZATION OF INFANTS

At a meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine on June 9th, with Dr. HUGH THURSFIELD in the chair, Professor A. CALMETTE of Paris spoke on the immunization of infants with B.C.G. In introducing Professor Calmette, the Chairman said that the honour which he had done the Section in coming to give his address was a very great one. Professor Calmette then accepted a diploma of honorary membership to the Section.

Up to the present, Professor Calmette said, physicians in Great Britain had maintained a conservative attitude towards the use of B.C.G. To-day he hoped to convince his hearers that it lay in their power to suppress the mortality due to tuberculosis among children by means of a safe protective measure. In France B.C.G. vaccine

was distributed freely by the Pasteur Institute, and cultures were readily supplied to foreign laboratories. Since the discovery of the tubercle bacillus by Koch fifty years ago much research had been carried out on the various strains. Most people were spontaneously vaccinated against tuberculosis in early youth by means of frequent exposures to small doses of infection. Children might encounter the tubercle bacillus in their mother's milk, in food, or in dust infected by the secretions of persons suffering from active disease. Happily these repeated infections were usually sufficiently small, and occurred at long enough intervals of time, to permit of the development of resistance, so that the child underwent a process of auto-vaccination. The aim of Professor Calmette and of his veterinary colleague, M. C. Guérin, had been to secure, by artificial means, this sort of immunity, characterized by resistance to superinfections of tuberculosis. For this purpose it was useless to employ tubercle bacilli killed by heat, or bacillary extracts, since neither exhibited immunizing power. Nor was it possible to use spontaneously attenuated cultures, because of their tendency to recover virulence. Nevertheless, it was fully appreciated that only living bacilli would be efficacious in producing a lasting immunity, and it was in an attempt to isolate a strain of hereditarily and fixedly avirulent tubercle bacilli that Professor Calmette and M. Guérin had begun their researches nearly thirty years ago. Such a strain, they realized, would have to be comparable with Pasteur's anthrax vaccines, the bacilli producing tuberculin in artificial culture media, and having lost none of their antigenic properties in spite of their avirulence.

They had begun, Professor Calmette said, by injecting calves intravenously with attenuated cultures of the human type of bacillus, but it was found that when these calves later became milch cows a certain number of bacilli were secreted in the milk, constituting a possible source of danger to children. An attempt was also made to isolate a suitable strain by using the types of tubercle bacillus affecting birds, and even cold-blooded animals such as snakes and tortoises ; but none of these was satisfactory. Eventually, by 230 passages on a highly alkaline lipoid-containing culture medium prepared with pure ox-bile, a strain was obtained which could be harmlessly used on cows, either as an inoculation or as an injection. After inoculation the animals showed resistance to the injection of virulent tubercle bacilli. This strain was known to-day as bacillus Calmette-Guérin, or B.C.G. The war had interrupted their researches, but when peace was declared they had been able to resume them. It was found that if newly born calves belonging to a herd of cattle infected with tuberculosis were inoculated with B.C.G., they could then mix with the herd without danger of contracting the disease. Professor Calmette and M. Guérin had then transferred their attention to monkeys —animals which are particularly liable to tuberculosis. The experimental monkeys were divided into three groups, of which those in the first group were inoculated with B.C.G., those in the second were infected with virulent tuberculosis, and those in the third group were left unmolested. All the animals were kept in the same cage. At the end of two years all those in the first group were alive and well ; all those in the second group were dead and had been replaced by other infected monkeys ; and of those in the third group four had contracted tuberculosis, and only one had escaped infection. Now convinced that B.C.G. was harmless to monkeys, the experimenters had wished to transfer their investigations to a human subject. An opportunity had arisen when a child came under their observation whose mother had died of tuberculosis two hours after the child was born ; the grandmother, who was also infected, had charge of the baby. Although convinced that B.C.G. was safe, it was not without misgivings that they had undertaken the immunization of this child, but they had been finally brought to a decision by the thought that in such an environment the chances of its survival were otherwise negligible. Immunization was actually begun within a few days of birth, and now, after ten years, the child was alive and healthy: the grandmother had succumbed to tuberculosis two years previously. After making this first experiment Professor Calmette and his colleagues had realized that it was practicable to vaccinate children against tuberculosis by exposing them to an inoffensive infection as early as possible after birth, before they had been attacked by a virulent organism. Between 1921 and 1924 a small group of children, numbering 317, most of them born into tuberculous or suspected families, were vaccinated, with such encouraging results that in July, 1924, the Pasteur Institute had decided to put the B.C.G. strain at the disposal of any laboratory or physician desiring to study its effects. Since then research work involving the vaccination both of calves and of infants had been undertaken in many countries. The perfect innocuousness of B.C.G. had been established everywhere. A few authors, including Petroff, Watson, and Dreyer, had expressed doubts of the complete harmlessness and fixity of the strain, but a vast amount of experimental research work in laboratories throughout the world had proved that such doubts were founded on technical errors. It must be remembered that all vaccines made from dead organisms were mild and feeble, and the immunity they produced fleeting and brief. Only vaccines made from living organisms were efficacious. In a consideration of B.C.G., not only its innocuousness, but its efficacy, must be taken into account. During an examination of the effects of vaccination with B.C.G. carried out on a large number of children both of healthy and of tuberculous parents, it was found (*a*) that the infantile death rate due to tuberculosis among those vaccinated fell almost to zero, and (*b*) that the general mortality of vaccinated children notably diminished. It was not true to suggest that the vaccinated children were better fed or more carefully supervised than those who had not been vaccinated ; analysis of the results by an impartial statistician had shown that no such error was operative. The fall in the general mortality suggested that the vaccinated children resisted disease better than the non-vaccinated, and possibly indicated the development of a non-specific immunity. In learning to resist B.C.G. the mesenteric glands had possibly developed their power of dealing with other organisms. In France 336,000 children had been inoculated up to May 1st, 1931, and there were now more than a million vaccinated children in the world: no accidents had occurred. The method produced the same resistance against virulent infections as a small fortuitous virulent infection, but without the same danger. The adoption of B.C.G. vaccination in all countries was desirable as a social measure against tuberculosis. The Pasteur Institute had put B.C.G. cultures gratuitously at the disposal of all the sanitary services in the world, thus enabling such services to prepare the vaccine, to distribute it free of cost, and to control its use. Professor Calmette hoped very earnestly to see English physicians become partisans of B.C.G.

In proposing a vote of thanks to Professor Calmette, Dr. ROBERT HUTCHISON said that conservatism had been carried too far in England in allowing the B.C.G. method of immunization to go so long without trial. The meeting had been sincerely impressed by Professor Calmette's clear and brilliant address, and he trusted that the method would now receive the attention in this country which it deserved. The vote of thanks was seconded by Sir W. DALRYMPLE-CHAMPNEYS.

STATE CONTROL OF THERAPEUTIC SUBSTANCES

At the annual meeting of the Fever Hospitals Medical Service Group of the Society of Medical Officers of Health, on June 12th, with Dr. SUTHERLAND in the chair, a paper was read by Mr. PERCIVAL HARTLEY, D.Sc., of the Standards Department, National Institute for Medical Research, on State control of therapeutic substances.

Dr. Hartley described the various therapeutic substances which came under the Therapeutic Substances Act, 1925, and pointed out that nearly all of them had certain properties and characteristics in common. The substances were markedly and sharply specific ; many of them were potentially very dangerous if improperly prepared, inaccurately standardized, or administered in an inexpert way, and, further, if the full benefit of their use was to be secured, the dosage must be precise, the practitioner must be able to adjust the dose to the condition of his patient and apply quantitative methods in his practice. In the short history of diphtheria prophylactic quite a series of misfortunes had been recorded in other countries, some of them due to errors in manufacture, others to mishandling of the product after it had been made. This country had benefited by the unfortunate experience of others, and he believed, thanks to the co-operation of many manufacturers, and to a certain extent to the application of the Therapeutic Substances Act, the possibility of accident from diphtheria prophylactic had now been reduced to vanishing-point. At an early stage in the study of these agents, it was clear that the amount of a particular substance must be accurately measured, otherwise there were no means of comparing the results of study in different laboratories, much less in different countries. It had proved possible to establish systems of measurement in this field of therapeutics. Practically all these substances had some specific distinguishing biological property. The laboratory worker found that definite quantities of these substances produced definite effects, and these were quantitative, some of them very sharply so. On this basis it had been possible to establish biological standards serving the same purpose as similar standards in physical science. A unit of biological measurement could be defined as the specific activity contained in a certain weight of the standard preparation. Standards, units, and systems of measurement had now been evolved for a great many of the therapeutic substances under discussion, and slowly their number was being increased. These standards were not merely national ; thanks to the League of Nations, international agreement had been secured in many cases.

The Therapeutic Substances Act was administered by regulations, the framing of which was carried out with very great care. First the regulations in countries where State control had been in existence were critically examined and adapted to British needs. The best expert opinion was sought on every point of importance. After three years' experience it was thought that some alterations might be necessary, and all the licensees under the Act were circularized and invited to make criticisms, but on no really large or prominent point was any modification asked for, showing that the first drafting of these important regulations had been well done. The licensing authority under the Act was charged with many important functions. If products of home manufacture alone had to be dealt with the problem would have been greatly simplified, and a supply of material of unimpeachable quality and purity would have been ensured by simpler methods. To ensure a uniform standard for the products of other countries presented no little difficulty, but a way of solving the problem had been found. In England the importing agent, not the foreign manufacturer, was licensed, and was made responsible for the foreign manufacturer's compliance with the regulations. This involved a good deal of inspection abroad and testing of foreign products at home. During the past year several import licences had been cancelled because of failure to satisfy the regulations in the matter of quality. A very important part of the licensing authority's duty was the inspection of premises and the examination of the finished product. It was impossible to examine samples of every therapeutic substance which went into circulation in this country ; regional medical officers, therefore, were asked to make a collection of a particular kind of material which the authority thought should be examined. This material was examined, as to labelling at the Ministry, and for potency, sterility, and so forth at the control laboratory. Last year 555 collected specimens were examined, covering practically all standardizable materials distributed under the Act. With regard to diphtheria antitoxin, fourteen samples were found below strength or otherwise not complying with the regulations, and as a result two foreign licences were withdrawn. Vaccine lymph needed careful control. As prepared for sale in this country, it must be free from gas-producing anaerobes and from haemolytic streptococci, it must contain less than a stated number of living visible micro-organisms, and must pass a test for potency. It was found last year that seven samples of vaccine lymph on one or other ground failed to reach the standard required. Appropriate action was taken, and in another case less drastic action was taken, the manufacturer being allowed to go on with the production of the substance, but required to submit samples of each batch to the Ministry before distribution. Two samples of pituitary extract failed to reach the standard, but these cases were dealt with short of withdrawal of licence. With regard to sterilized surgical ligatures, it was decided after long discussion that sterilized catgut should be controlled under the Act. A number of unfortunate happenings had occurred, chiefly in Scotland, owing to contaminated catgut, and the need for control was recognized. The manufacturers themselves agreed. Last year 138 varieties of catgut available for use by surgeons in this country before the Act became operative in respect to this subject were examined, and 42 were found to be contaminated. Nine applications were received for manufacturers' licences in England, and after tests and examinations of premises, only six were granted, and there were seven applications for import licences, of which five were granted.

Dr. R. A. O'BRIEN said that the prospect of the Act was at first somewhat alarming to those connected with production, but in operation it had proved welcome, and the Government staff deputed to carry out its provisions had been helpful in every way. He hoped that the Act would eventually deliver the industry from irresponsible standards. It was very disconcerting to find, with a certain substance alleged to have a standard value, that the people responsible for the standardization had altered the value of their original standards. The Act had also discouraged a certain specious accuracy. People had been too ready to talk of " units," and to imagine that that magical word meant that a standard of accuracy had been already attained.

Dr. E. W. GOODALL, Dr. J. D. ROLLESTON, and Dr. A. JOE added a few comments, all in commendation of what had been effected under the Act, and Dr. HARTLEY, in reply, paid a tribute to the people in this country who, prior to the Act, were working on this subject in the producing laboratories. One reason for legislation was that the superstructure which they had erected in England ought not to be jeopardized by the possible introduction of therapeutic substances of inferior quality.

Reviews

PIERSOL'S TEXTBOOK OF ANATOMY

Piersol's Human Anatomy[1] was first published twenty-four years ago, under the editorship of Professor G. A. Piersol of the University of Pennsylvania, with the help of half a dozen collaborators. Of the latter, only one now survives—as emeritus professor. The work of the original editor and his collaborators has been well rewarded by a popularity which has led to the production of successive editions. Now the ninth edition has appeared, under the supervision of Professor HUBER of the University of Michigan. One of the chief points of difference between this new edition and its predecessors is the consistent adoption of the B.N.A. nomenclature. The abandonment of what is usually called the "old nomenclature" in anatomy has become inevitable, in spite of the protestations—now growing less audible—of the older British anatomists. But we may perhaps, in passing, express the opinion that it is now time to revise the B.N.A. nomenclature in order to replace some of the cumbrous and misleading terms which are to be found therein. A few changes have been made in the revision of parts dealing with the histogenesis of the blood elements and the embryological development of certain systems concerning which views have changed during recent years. In the section devoted to the central nervous system the supervisor has had the invaluable assistance of Miss Crossby. This investigator has in the last few years completed a vast amount of detailed and laborious study on the comparative anatomy of the brain in vertebrates, and her work has been published in a number of voluminous papers in American journals. The reader may be certain, therefore, that the details of neurological anatomy in Piersol's textbook are dealt with in an accurate and comprehensive manner.

Of the text generally we have no criticism to offer. Perhaps it may be considered rather too long for the purpose of the average medical student (it runs into over 2,000 pages), and the volume certainly reaches the utmost limit in bulk for convenient use. The illustrations, we think, are not in keeping with the high standard of the text. They often lack the precision and clear simplicity which are so necessary for the production of successful anatomical figures. This is evidently due in part to the printing, as is apparent especially in the case of the coloured illustrations. It is unlikely that Piersol's *Anatomy* will be a competitor with Gray and Cunningham for the favour of medical students in this country. On the other hand, its comprehensive treatment of the subject in general, and the authoritative accounts given in sections such as that on the nervous system, render it an invaluable reference book to all those who may be primarily or secondarily interested in the science of human anatomy.

ANATOMICO-CLINICAL DIAGNOSIS OF DISEASES OF THE BREAST

The pupils of the late Professor Paul Lecène have dutifully arranged to bring out in a series of five monographs the material which their chief had for ten years been preparing for his *Les Diagnostics Anatomo-Cliniques*,[2] the first volume of which deals with general principles and diseases of the breast, by Dr. P. PAVIE and Dr. P. MOULONGUET respectively. It begins with a reproduction of some ten pages of Lecène's original manuscript of the preface. In discussing what the surgeon ought to learn from laboratory investigations, Dr. Pavie points out that Lecène regarded clinical, operative, and careful naked-eye examination as being supplemented by microscopical examination, which should be regarded as the fourth in the process of scientific investigation. In the section on the method of biopsy, stress is laid on the importance of sending to the laboratory with the specimen adequate clinical and anatomical details, and it is stated that without some information of this kind a conscientious morbid histologist should decline to give a report.

Nearly three-quarters of this finely illustrated volume is devoted to diseases of the breast, in which acute and chronic infections, dystrophies (such as hypertrophy), multiple cystic disease and adeno-lipoma, innocent and malignant new growths, and fat necrosis are described. The section on tuberculosis of the mamma points out the various aspects which this infection may present, the form simulating a galactocele being figured; Lecène never met with the non-suppurating sclerosing form which imitates cancer, but elsewhere an illustration of the combination of the two is given. Galactocele is included under the infections, as Lecène and Chifoliau showed a quarter of a century ago that it is due to subacute or chronic inflammation of the mamma. Lecène never saw an example of tertiary syphilis or of actinomycosis of the breast; but, as shown in a figure elsewhere, a necrotic carcinoma may simulate a gumma of the mamma. "Paget's disease of the breast" is preferable to the title "Paget's disease of the nipple," because, in Lecène's experience, the skin changes are always accompanied by lesions in the ducts in the substance of the breast, and further, as Lenthal Cheatle has shown, these changes in the ducts may occur without any alteration in the nipple. Fat necrosis, well shown in two coloured plates, is relatively frequent in fat women after injury, and, as it forms an ill-defined hard lump, adherent to the skin, may give rise to difficulty in diagnosis from malignant disease. This article, for which Dr. P. Moulonguet is responsible, is full of interesting information.

EXAMINATION OF THE LUNGS

The chapters in *The Physical and Radiological Examination of the Lungs*[3] embody the teaching given by Dr. CROCKET to his students at Glasgow University. It is nine years since the first edition was published, and the second is to a large extent a new book. Even the title has been altered. Two new methods of examination have been described and advocated in the intervening years—bronchography and bronchoscopy. The technique and results of the former are well described and illustrated. The latter is not dealt with, but its value is scarcely recognized in this country.

The various other methods of examination are described in detail, and stress is laid on the value of inspection of the patient, an important part of the routine examination so often neglected. The section on radiology is admirably illustrated by numerous radiograms. A chapter on the methods of examining a case gives to the student a systematic routine procedure for dealing with any patient presenting pulmonary symptoms. This will obviate the likelihood of anything important being missed when endeavouring to form an opinion and make a diagnosis. The author has wisely again included a well-illustrated chapter on the examination of the larynx.

[1] *Piersol's Human Anatomy*. Ninth edition, revised under the supervision of G. Carl Huber, M.D., Sc.D. London: J. B. Lippincott Co. 1931. (Pp. xx + 2,104; 1,734 figures. 45s. net.)

[2] *Les Diagnostics Anatomo-Cliniques de Paul Lecène*. Recueillis par ses élèves. (i) Généralités, par P. Pavie; (ii) Lésions du sein, par P. Moulonguet. Paris: Masson et Cie. 1930. (Pp. xi + 189; 92 figures, 2 plates. 45 fr.)

[3] *The Physical and Radiological Examination of the Lungs*. By James Crocket, M.D., D.P.H., F.R.C.P.Ed. Second edition. London: H. K. Lewis and Co., Ltd. 1931. (Pp. x + 296; 151 figures, including 40 plates. 16s.)

Without such an examination an investigation of the chest cannot be regarded as complete, particularly if pulmonary tuberculosis is suspected. The larynx is so intimately associated with the respiratory apparatus in its functions and its diseases that the omission of such a chapter would have been a mistake. An unusual feature is the thirteen-page glossary of terms and signs used in the physical examination of the lungs, which forms an appendix. It is usually difficult to find definitions of terms used in medical literature generally, and in connexion with diseases of the lungs in particular. It is a pity that so many signs and areas should still bear the names of the men who first described them. Such names as Troisier's sign (enlargement of the supraclavicular lymph glands), Burns's space (suprasternal), Damoisseau's sign and Ellis's line (the curved upper limit of a pleural effusion), and Mohrenheim's fossa (infraclavicular) are unnecessary and confusing, and might well disappear from modern textbooks.

By a curious convention the author has written this book "with special reference to tuberculosis and silicosis," and chapters are devoted to these diseases, while other important pulmonary diseases such as pneumonia, pleural effusion, bronchitis, and pulmonary neoplasm are scarcely mentioned. Since the book is primarily intended as a manual on the examination of the lungs for students, it is perhaps a little unfortunate that the author has allowed himself to particularize in this way, despite the great importance of the two diseases he has picked out.

PHARMACOLOGY OF QUININE

Quinine in general practice with regard to pharmacological knowledge,[4] by Dr. F. JOHANNESSOHN, is a monograph of 232 pages published by the Amsterdam Bureau for the Encouragement of the Use of Quinine. The author describes shortly the history, mode of preparation, and chemistry of quinine, but most of the volume is occupied by a discussion of the pharmacological actions and therapeutic uses of quinine and of quinidine. He explains in the preface that his purpose is to give an account of the actions exerted by quinine on the body as a whole, rather than an account of its specific action on the malarial parasite. In accordance with this intention he has provided a full description of the pharmacology and therapeutic uses of quinine and quinidine, and there is also a useful bibliography. Relatively little is said regarding the action of quinine in malaria, for this subject occupies only eight pages; moreover, in the section on quinine poisoning only two pages are given to blackwater fever. The book provides a full account of our knowledge of the general pharmacological actions of quinine, a subject that is often unduly neglected on account of the dominating interest of the problems relating to its specific action in malaria.

THE V.A.D. IN THE WAR

Four Years Out of Life[5] is an interesting account of the experiences of a V.A.D. worker during the war. It is an eminently human document, written in a light and entertaining fashion, without a single dull page. Its easy, clear descriptions contain much of a thoughtful nature beneath their bright exterior. Of the various combatant and non-combatant services, none emerged from the crucial test of war with a higher credit than the Volunteer Aid Detachments. Many of the girls who composed these units were brought up to regard tennis and garden parties as the important things of this life. Yet when the war broke out they realized what was at stake, and rose magnificently to the occasion. Less instructed and less practised than their sisters in the nursing services, they were none the less willing. Many had led careful, sheltered lives, which were a poor preparation for the stern realities of war. They were ready to perform any menial and unpleasant duty and to fill any subordinate position without hesitation and complaint. By their high endeavour and achievement they earned for themselves an honourable place among the forces of the Crown. These things are not insisted upon in the breezy pages of LESLEY SMITH'S most readable book: they are taken as a matter of course. She describes with a sure touch the routine of duty in a base hospital, the arrival of convoys of wounded and sick, the activities of the operating teams, and the hard, grinding toil of the sisters, whether trained or untrained. The vicissitudes of the weather, the unpleasant attentions of the German bombers, the cold and wet and the sad sameness of the mess-room meals, are all set down. In her constant subdued protest against the matron type of official, she reveals herself a rebel at heart. This does not appear to have affected her efficiency as a nurse or to have lessened her interest in her work. Soldiers who spent most of the war up the line, remote from hospitals, may be permitted to indulge a faint surprise at the wealth of lurid language those ministering angels are described as using. Is this, on the authority of Lesley Smith, to be accepted as correct? One wonders if it has not been perhaps too much dwelt upon in the pages of an otherwise thoroughly readable book, which shows unusual faculties of observation and powers of description.

CRIPPLED CHILDREN

Dr. EARL D. MCBRIDE of Oklahoma has prepared a guide for the help of nurses, masseuses, and other non-medical persons who may have the care of cripples. Nothing can take the place of first-hand practical instruction and demonstration by the orthopaedic surgeon, but such a vade mecum as *Crippled Children*[6] should be of considerable use for reference, or to refresh the memory. Although the treatment of deformities by operation is beyond the scope of nurses and social workers, some knowledge of the nature of operative proceedings improves the intelligent carrying out of post-operative measures and enhances interest in progress. Dr. McBride includes harelip and cleft palate in the crippling deformities of children, and gives indications of the operations needed for their relief. In discussing spastic paralysis he does not, in our opinion, give enough credit to Stöffel's operation, which many surgeons have found so useful when judiciously planned and performed. Royle's operation is not yet established in the position of a practical means of treatment. More might have been said, when discussing infantile paralysis, of the frequency and importance of paralysis of the muscles of the abdomen and trunk. The condition of the abdominal muscles is apt to escape detection when interest is centred on the more striking palsy of the lower limbs. The hints as to the fitting, application, and care of the Thomas knee splint are of practical value, and should be taken to heart by all who have to do with it. The chapter on plaster-of-Paris technique should also be useful.

[4] *Chinin in der Allgemeinpraxis.* Von Dr. med. Fritz Johannessohn. Amsterdam-W.: Bureau Tot Bevordering van Het Kinine-Gebruik. 1930. (Pp. 232; 3 plates. Sent, free of charge, to medical men, on request.)

[5] *Four Years Out of Life.* By Lesley Smith. London: P. Allan. 1931. (Pp. 302; illustrated. 12s. 6d. net.)

[6] *Crippled Children.* By Earl D. McBride, B.S., M.D., F.A.C.S. London: H. Kimpton. 1931. (Pp. 280; 159 figures. 15s. net.)

ELEMENTS OF PHYSIOLOGY

Professors SCARTH and LLOYD, who hold chairs of botany in McGill University, have written a very interesting *Elementary Course in General Physiology*.[7] The book is divided into two parts, the first dealing with principles and theory, the second giving laboratory exercises. It is hoped that the work will serve as an introduction to the analysis of physiological processes in terms of physical and colloidal chemistry; it is especially intended for the use of students of medicine, biology, and plant physiology. The general plan adopted is to discuss the various processes in purely physical systems and then to consider their possible application to living cells. After an introductory chapter on the structure of the cell, various surface phenomena are discussed, and their importance is brought out prominently by the statement that there are 30,000 square metres of internal surface in the body. Surface tension is carefully dealt with—its cause, its relation to shape of cells, to protoplasmic movements, to ingestion and excretion by unicellular organisms, and the light it throws on the phenomena of leucocytosis; absorption is considered equally fully, and reference is made to the action of narcotics, to catalysis, and to post-mortem and vital staining. Chapters follow on osmosis and diffusion (in which problems of cell permeability are gone into), on H-ion concentration, on bioelectric potentials and currents, colloids, and enzymes. Throughout great pains are taken to make clear how the physico-chemical processes under discussion illuminate physiological problems.

This book will well repay careful study, especially by those who have not received a thorough grounding in physical chemistry. A good deal of the material dealt with and the exercises described might with advantage be brought into the regular medical curriculum. This would be a more useful branch of study than much of the inorganic and organic chemistry which is so widely taught at present, and could very well replace it to a large extent.

NOTES ON BOOKS

In writing *A Survey of Physics*[8] Professor FREDERICK A. SAUNDERS of Harvard University has endeavoured to steer a middle course between the popular presentation and the textbook for advanced students. His aim is to encourage "a thoughtful consideration of the subject by a choice of problems dealing with common things, but often in such a way that they cannot be solved by mere substitution in a formula." He uses elementary mathematics where necessary, but all the trigonometry needed for this book is summarized in a page and a half at the end. The letterpress is clearly written and clearly printed, and the illustrations are well chosen.

Having assumed personal responsibility for the first nineteen editions of his *Materia Medica, Pharmacy, Pharmacology and Therapeutics*,[9] Sir WILLIAM HALE-WHITE handed over the task of revision to Dr. A. H. DOUTHWAITE, and we now welcome the appearance of the twentieth edition of this deservedly popular handbook, whose features are too well known to need description. The general arrangement and style have been preserved, and brief additional notes inserted in order to bring the work into line with present-day knowledge. Among the new paragraphs in this edition are notes on ephedrine, quinidine, novarsurol, avertin, treatment by liver and gastric tissue, lipiodol, sodium tetraiodophenolphthalein and uroselectan, and Collip's parathormone. The vitamins also receive brief mention.

It is scarcely two years since we noticed the third edition of ASHHURST'S *Surgery, its Principles and Practice*, and now a fourth has been published,[10] testifying to the popularity of this general surgical textbook among students and practitioners in America. There is evidence of careful revision throughout the letterpress, and a good deal of new matter has been added at various places, including a number of new illustrations. Dr. Ashhurst's work as professor of clinical surgery in the University of Philadelphia has made him familiar with the everyday needs of his pupils and with the paramount necessity for broad foundations in the teaching of surgery. Among the subjects treated more fully in this new edition of an excellent book are rectal and spinal anaesthesia, injection treatment of varicose veins, hyperthyroidism, peptic ulcers, and tumours of the sympathetic nervous system; but it seems curious in a volume of nearly 1,200 pages to find only a paragraph of twelve lines on the therapeutic use of radium.

The thirty-fifth supplement[11] of *Acta Medica Scandinavica* consists of an essay by Dr. ALEXANDER JAROTZKY, professor of clinical medicine at Moscow University, on the dietetic treatment of gastric and duodenal ulcer based on the work of the Russian School of Physiology. The author holds that the principle in the rational treatment of hypersecretion and peptic ulcer is the avoidance of mixtures of fat and albuminous substances of animal origin. Several illustrative cases are recorded, and the details of suitable diet for subjects of peptic ulcer are given. An extensive bibliography is appended.

In his work on the *Social Control of Sex Expression*,[12] which is appropriately dedicated to Professor Edward Westermark, Mr. GEOFFREY MAY has made an interesting study of the control exercised by Anglo-American law over voluntary sex expression. The work is divided into three parts. In the first the author successively considers sexual repression among primitive peoples, the ancient Hebrews, and the early Christians. The second part, which is devoted to the doctrine of sex repression in English law, covers the periods from the Anglo-Saxon times down to the present day, special attention being given to the Puritan era and the Restoration. The last part deals with the doctrine in Anglo-American law in pre-revolutionary America and at the present day. A useful bibliography is appended. The author comes to the conclusion that while the methods of legal control of sex expression have varied widely throughout American history, the doctrine of sexual morality itself has not varied at all.

The eighth volume of *Proceedings of the University of Otago Medical School*[13] reproduces six papers published in medical and scientific journals between July, 1928, and October, 1930. The editor is Professor D. W. CARMALT JONES.

To the medical man, already overburdened with the terminology of his own profession, the *Illustrated Encyclopaedia of Motorcar Parts and Technical Terms*[14] will be welcome. It is the "Pocket Gray" of the car.

---

[7] *An Elementary Course in General Physiology.* Part I: Principle and Theory. By G. W. Scarth; Part II: Laboratory Exercises. By F. E. Lloyd and G. W. Scarth. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd. (Pp. xxi + 258; 66 figures. 13s. 6d. net.)

[8] *A Survey of Physics.* By Frederick A. Saunders. London: G. Bell and Sons, Ltd.; New York: H. Holt and Co. 1931. (Pp. x + 635; illustrated. 14s. net.)

[9] *Materia Medica, Pharmacy, Pharmacology and Therapeutics.* By William Hale-White, K.B.E., M.D., LL.D.Ed. Twentieth edition, revised by A. H. Douthwaite, M.D., F.R.C.P. London: J. and A. Churchill. 1931. (Pp. viii + 712. 10s. 6d.)

[10] *Surgery, its Principles and Practice.* By Astley Paston Cooper Ashhurst, M.D., F.A.C.S. Fourth edition, thoroughly revised. London: H. Kimpton. 1931. (Pp. xi + 1,189; 1,063 figures, 15 plates. 45s. net.)

[11] *Diätetische Behandlung des runden Geschwürs des Magens und des Duodenums.* Von Dr. Alexander Jarotzky. *Acta Medica Scandinavica*, Supplementum xxxv. Stockholm: Aftonbladets Tryckeri. 1930. (Pp. 114.)

[12] *Social Control of Sex Expression.* By Geoffrey May. London: George Allen and Unwin, Ltd. 1930. (Pp. xi + 245. 12s. 6d. net.)

[13] *Proceedings of the University of Otago Medical School.* No. 8. 1931. Edited by D. W. Carmalt Jones, M.D., F.R.C.P. Dunedin, N.Z.

[14] *Illustrated Encyclopaedia of Motorcar Parts and Technical Terms.* London: *The Motor.* 1931. (Pp. 24; illustrated. 6d.)

THE EFFECT OF RESEARCH ON CURATIVE MEDICINE

STEPHEN PAGET MEMORIAL LECTURE BY DR. H. H. DALE

At the annual meeting of the Research Defence Society on June 10th, with Lord LAMINGTON in the chair, the fifth Stephen Paget Memorial Lecture was delivered by Dr. H. H. DALE, F.R.S., whose subject was "The effect of research on curative medicine."

THERAPEUTICS AND EXPERIMENT

After an eloquent tribute to Stephen Paget, Dr. Dale said that, looking back over the comparatively short period of some thirty years which had elapsed since his own student days, he got the impression of a remarkable change in medicine. At the close of the last century the new knowledge that experiment had given was only beginning to make its way into the therapeutic aspects of medicine. Treatment then still largely depended on the administration of drugs, the use of which was based on tradition and empirical observation. He would not, for that reason, include them all in a hasty or general disparagement. Some of the old remedies held their own to-day, and with increasing value as experiment had shown the manner of their action and provided a rational basis for their use. There were many others, however, which were given without any real conviction of their value; the most that a weary scepticism expected of them was that they would not obstruct a tendency to cure by natural process. In striking contrast to this pessimism with regard to much of the older therapeutics was the clear conviction concerning the value of the few remedial agents which had already then come into general medicine through the work of the research laboratories. The physician who had known myxoedema as an incurable condition before Horsley's work and Murray's application of it did not give thyroid gland to such a case now with a feeling that it might do good and that it would in any case be harmless, but gave it with a knowledge of its practically certain efficacy. The physician in the isolation hospital who had had the heartbreaking experience of trying to cope with diphtheria in the days before antitoxin did not now give antitoxin with a feeling that it was at least harmless; he gave it with the knowledge that, if the case came early under treatment, the antitoxin would almost certainly effect cure.

Those were examples of therapeutic agents the remedial action of which had not been discovered by chance observation, like that of the older medicines, but had been arrived at by the logical process of experiment. Since those days the number had grown steadily. The example of insulin was already almost too familiar, but it had become so because of the dramatic change it had effected in the outlook of the sufferer from diabetes. Dr. Dale took another chemical substance produced by artificial synthesis, and chosen after laborious trial of many, as the one supremely efficient in attacking the infective microbe of syphilis. Its discovery would have been unthinkable without experiment on animals artificially infected. All the modern effort to control this scourge of human folly and to save the innocent from the danger of its contact would be crippled if salvarsan and its derivatives were no longer available.

He could multiply examples of the new potent remedies which the experimental method had given to medicine, but what he wanted to emphasize was the effect of research not only in producing new remedies, but in putting old ones to their proper use. He gave the example of ipecacuanha, the value of which had been enormously enhanced by experimental research. To anyone who knew the facts it was unthinkable that, without experiments on animals, there would have been obtained the clear knowledge now available concerning the parasites causing the different dysenteries. At the proper stage this method of experiment was essential. In due course, however, it led to a process of cultivating the dysentery amoeba artificially outside the human or animal body. His colleagues Dobell and Laidlaw, at the National Institute for Medical Research, had so perfected the process that this artificial growth of the amoeba on a dead medium could be continued indefinitely. The efficacy of ipecacuanha alkaloids in stopping the growth of this cause of tropical dysentery could now be demonstrated in a test tube. He begged his audience to think what that might mean for further progress. New substances likely to have a curative action on amoebic dysentery could now be given a first trial without the use of experimental animals, other than the amoeba itself. Let them compare the position which had thus developed under the intelligent use of experiment with that in which a really valuable drug, ipecacuanha, was for centuries used indiscriminately to treat a group of human diseases, on only one of which it had any effect, and was in the end deprived of its only valuable constituents to avoid a minor inconvenience of their action. Could anyone seriously face the possibility that some valuable new remedy might similarly find its true use only after centuries of confusion and misapplication, at an uncounted cost of human pain and sickness unrelieved or aggravated?

STANDARDIZATION OF REMEDIES

Dr. Dale went on to call attention to a particular need for the method of direct experiment in giving precision and safety to the use of many active remedies. In the case of potent vegetable drugs it was often possible, when once the active constituent had been identified, to determine the activity of a sample by an ordinary chemical analysis. When the methods were first found, however, of producing Nature's own remedies against certain infections by rendering a horse artificially immune against the corresponding bacterial poison, and separating from its blood the serum containing the natural antidote, a new problem of standardization presented itself. Such an antidotal substance could not be chemically distinguished from the constituents of an ordinary serum; it could only be recognized and estimated by its power of combining with the bacterial poisons so as to render it harmless; and this neutralization, again, could only be demonstrated by injecting the mixture into a susceptible small animal. On these lines, methods had developed by which the activity of some of these important new remedies could be measured as accurately as some of the older drugs could be measured by chemical analysis. The first of these natural antidotes to which such biological methods of measurement and standardization were successfully applied were the antitoxins against diphtheria and tetanus. Doses of these remedies came to be indicated, not in minims, ounces, or pounds, but in units of accurately measured activity. A new system of dosage, necessitating animal experiment for its indication, thus came into being with the advent of a new class of remedies, and the success of their application had depended very much upon it. As soon as a method had become available for thus measuring the activity of a serum with accuracy it gave rise to a new order of therapeutic usefulness. There were still cases in which the antidotal power of serum could not yet be measured with any approach to accuracy. For want of such methods of measurement the practical value of a serum was seriously compromised. Each new clinical use of an unstandardized remedy was not merely an experiment on man, it was a bad experiment, without adequate data, the result of which would make little contribution to

the general body of life-saving knowledge. Where accurate methods for biologically measuring the activity of one of these natural antidotes already existed, it was a duty, imperative on those concerned in its production, to see that the methods were regularly applied with skill and care; where adequate methods had not yet been found, it was equally the duty of those with opportunity to press on with research whereby such methods might result.

THE EXAMPLE OF INSULIN

Turning again to insulin, Dr. Dale said that there could not be a more striking example of the necessity for animal experiment in the direct biological measurement and standardization of activity of a naturally potent remedy. Without animal experiments the existence of insulin would not have been known; without animal experiments it could not have been, and could not yet be, prepared and tested so as to be safely and effectively used in the treatment of human diabetes. There was no other remedy with which such absolute precision in dosage was needed. The sufferer from diabetes, owing to lack of natural insulin in his system, had excess of sugar in his blood. The exactly right dose of insulin, repeated at proper intervals, would bring the sugar to within normal limits. Too small a dose would leave him with symptoms of diabetes; too large a dose would so empty his blood of its sugar as to produce alarming and even dangerous symptoms of a different kind. Far too little was still known about the chemical nature of insulin to be able to measure it or even detect it by a chemical test; the only way of indicating the strength of an insulin solution was in physiologically determined units. When the strength had thus been correctly determined and indicated, the doctor could adjust the dose to the particular patient's needs with remarkable accuracy, and the patient could go on, day after day, for long periods, taking the same dose. What would happen if these animal tests were omitted or inadequately done? The question had been answered by an actual experience. The obligation to standardize by animal tests was not adequately carried out in the case of a particular make of foreign insulin which appeared for a short time in this country. Reports immediately came in of patients who had relapsed into diabetes because one batch was too weak, or had suffered from dangerous symptoms because another batch was too strong. Samples were immediately tested at the National Institute, and were found to be in the one case weaker and in the other case stronger than the indications on the respective labels. Fortunately, the controlling authority had power to deal with the situation, and no more of such inadequately standardized insulin had been distributed. He asked again whether anybody was so confident in his opinions, so firm in his prejudice, that he was willing to say that regular tests on animals should be abandoned, and to put this forward as a practical proposal to the sufferers from diabetes or their relatives and friends. He added, however, that one kind of improvement which researchers always had in view was the discovery of a test for any of these substances which would enable the activity to be measured without the use of living animals at all. The researchers would much rather use chemical indicators in test tubes, always provided that these would give an equally good guarantee of the safety and effectiveness of a remedy which was to be used in treating the human patient. They would gladly spare the lives of mice, but not at the expense of the lives of men.

RESEARCH AT THE NATIONAL INSTITUTE

In conclusion, Dr. Dale gave some account of the work of the National Institute for Medical Research, and especially referred to the work on ultra-microscopic filter-passing viruses. It was hoped that new methods of study would bring about the result in respect to these viruses that the methods elaborated by Pasteur and Koch had done in respect of the visible bacteria. The discovery of such methods claimed all the patience, ingenuity, scientific experience, and discipline that distinguished investigators could bring to it in all parts of the world. The roll of honour of those who had fallen victims in the quest was a sadly long one, but on the success of such work depended real advance of knowledge concerning diseases as familiar as measles, mumps, chicken-pox, small-pox, so-called sleepy sickness, yellow fever, influenza, and even the common cold, as well as many diseases of domestic animals—foot-and-mouth disease, cattle plague, dog distemper, hydrophobia, and several others. Since the viruses causing these diseases could neither be seen with a microscope nor cultivated outside the living body, to prevent their study and investigation by the method of experiment on living animals would be to prevent their study altogether. The presence of such a virus could only be demonstrated, the quantity of it could only be measured, by experimental inoculation into a living animal. The hope of everybody concerned in such work, and the principal object of their investigations, was the discovery of methods for displaying the virus by some use of the microscope, and for cultivating it on some kind of lifeless medium, so that its nature might be brought under closer scrutiny without recourse at every stage to animal experiment. Hopeful progress in that direction was being made, and at an increasing rate in recent years. At present, however, the abandonment of experiments on animals would mean the practically complete cessation of the study of these deadly diseases, with all that it might afford of life-saving knowledge for men and for the animals themselves. Man's fruitful, conservative, and purposeful experiments would cease, but Nature's vast and destructive ones would continue.

A PERSONAL EXPERIENCE

Following the lecture Dr. R. D. LAWRENCE, who had suffered seriously from diabetes and was now healthy and vigorous after being treated with insulin, gave his personal experience with the remedy. The adult sufferer from the disease had, he said, before the discovery of insulin, the prospect of a living death for, at the most, four years; the average young patient died within two years of the disease being diagnosed, while infants died within two or three weeks of its being discovered, and this despite the best treatment which in those days the profession could offer. As one who had suffered from diabetes, which had once compelled him to give up his work and live for a time on a starvation diet, he was now able to say that he was mentally and physically strong, could work fourteen hours daily, and walk and climb as much as he desired. He felt so strongly about the people who opposed the testing and issuing of insulin that no other term than "well-meaning murderers" was applicable to them, and in that remark he believed he had the support of thousands of fellow subjects of the disease—they could scarcely be called sufferers now.

THE YEAR'S WORK

Viscount KNUTSFORD proposed a cordial vote of thanks to Dr. Dale, which was carried by acclamation. At the business meeting which followed, the annual report of the Research Defence Society was adopted. The society had exercised itself during the year in securing opposition to the Bill which sought to prohibit the expenditure of public money on research, in the promotion of the standardization and testing of drugs. Reference was made to the need for continual vigilance and activity, as in many districts of the country an insidious campaign against the advancement of medicine by research was being carried on without opposition.

British Medical Journal

SATURDAY, JUNE 20th, 1931

INSURANCE SICKNESS CLAIMS

In the *Journal* of May 17th, 1930 (p. 914), there was an article on sickness benefit claims, based on a report (summarized in the *Supplement* of May 10th, 1930) by the Government Actuary on the sickness and disablement experience of a group of approved societies for the years 1921 to 1927. In that article the results set out in the report were described as "somewhat remarkable and disquieting," and it was stated that "some further investigation in certain directions is necessary and is being undertaken." This further investigation has now resulted in a very important memorandum on certification of incapacity for work (Memo. 329/I.C.), issued by the Ministry of Health and the Department of Health for Scotland to insurance practitioners, and a corresponding circular (A.S. 278) issued to approved societies. These publications demand the early and close attention of all bodies and persons concerned with medical certification under the National Health Insurance Acts. It is much to be regretted, however, that the Ministry, before drawing any final conclusions from its investigations, did not submit the facts disclosed to the Insurance Acts Committee for its observations. Previously the Ministry had invited the committee to co-operate in discussing the problems raised by the increase in sickness benefit claims, and the committee had suggested to the Ministry action which it might be useful to take with reference to any possible laxity of certification on the part of insurance practitioners. The committee had every right to expect that this co-operation would continue, and that it would be brought into consultation before any public pronouncement on the subject was made. The Ministry has, unfortunately, preferred to take independent action without reference to those with whom it was supposed to be associated in the consideration of a very difficult matter. Its inferences from the facts may well be disputed, and have far less authority than if they had been agreed findings.

As to the facts themselves there is no dispute. Since the issue of the Government Actuary's report referred to above, it has been common knowledge that between the years 1921 and 1927 there was an extraordinary rise in sickness and disablement claims. The actual figures are worth repeating. As regards sickness benefit the claims of men rose by 41 per cent., those of unmarried women by 60 per cent., those of married women by 106 per cent. As regards disablement benefit the percentage rises were 85, 100, and 159 respectively. The increase was shown to be in the proportion of members claiming, and not in the duration of claims, and to be most pronounced in short illnesses. There was some improvement in the year 1928, but the position in 1929 was substantially the same as in 1927. In 1930 there was again some improvement. Two further inquiries have been undertaken. The first of these was a careful scrutiny of the results of references to the regional medical staff during 1929; the second was an inquiry into the actual physical condition of a representative sample of insured persons in receipt of benefit on May 5th, 1930. The former investigation showed that 58.5 per cent. of those referred ceased to receive benefit as the result of the reference, the proportion among women being much higher than among men, and the proportion for short illnesses much higher than for those of longer duration. The latter investigation showed that the number of final certificates issued on the two days before receipt of notice of reference was 359, while the number issued on the day of notice and the following day was 749. The broad conclusions drawn by the Departments from all these inquiries are that a substantial proportion of insured persons claim benefit who are not strictly "incapable of work" as understood in the insurance scheme; that the proportion is greater in lower age groups than in higher, and in illnesses normally of short duration; that the proportion is greatest in the case of married women within child-bearing age, higher for married women than for the unmarried, and higher for unmarried women than for men.

The checks upon improper claims for sickness and disablement benefit are: (1) medical certification, and (2) supervision by societies. Under the latter are included prompt scrutiny, effective sickness visiting, correct record keeping, with periodical analysis of expenditure among classified groups of members, and adequate and judicious use of the regional medical service. These are all duly emphasized in the circular issued to approved societies, and they should be recognized as collectively of the first importance in checking improper claims. It is interesting to note that the Ministry and the Scottish Department once more call the attention of societies to the facts that "improper statements made by local agents and visitors regarding a member's right to benefit embarrass medical practitioners in dealing with insured persons"; and that "notwithstanding repeated warnings, cases still arise of requests being made to doctors for the issue of certificates on particular days of the week; also cases in which doctors have been requested, at the instance of societies or their representatives, to alter the dates on certificates." "The Departments look to societies to see that effective steps are taken to ensure that their representatives are warned against these practices."

The memorandum to insurance practitioners is concerned with the other check upon improper claims; and the conclusion is that "the main factor in the general increase has been an increase in payments to persons who were not incapable of work," and that "responsibility for this must be put, in the first place, on medical certification." This is a serious conclusion, and must be faced. It might be true, as stated, if it read "a main factor"; for the facts upon which it is based, and the logical process by which it is reached, are clearly and moderately set out

in the memorandum, and weight has been given to some of the considerations, which must be borne in mind in drawing inferences from available relevant statistics. Yet the extent to which "the main factor" is as stated, and the relative degree of "responsibility" to be assigned to imperfect medical certification, may well be in question. Others will not be as confident as the Departments that certain explanations of the situation have been eliminated, and it is quite possible that greater importance ought to be attached to certain factors which the memorandum rules out of account.

The memorandum states three possible explanations of the increase of claims for benefit since 1921—namely, "(*a*) a great increase in incapacitating sickness, (*b*) a tendency of persons incapable of work who would not have claimed in earlier years, to claim under present conditions, and (*c*) an increase in the number of admitted claims by persons who are not incapable of work." It may be agreed that (*a*) can be dismissed. It is said that "(*b*), although doubtless true to a limited extent, is quite inadequate as an explanation of the great increase that has been observed." Again, it may be agreed that this is not a complete explanation, but it should be given far greater weight than is assigned to it. The memorandum states: "That there are such cases is, of course, a matter of common knowledge, but it has never been suggested that they are sufficiently numerous to have a substantial effect in producing the observed differences in payment of benefit." On the contrary, this *has* been suggested, and it is here and now suggested, as producing a substantial effect, and even as being a "main factor" in the situation. It must be remembered that the initiative with regard to certification lies not with the doctor, but with the insured person. The first certificate and intermediate certificates are, by rule, to be given "if so desired by the insured person," or "if the insured person so requests," provided that there is "incapacity." It is true that in a great many cases the doctor has to advise, even insist on, absence from work; but though it may be true, as the memorandum puts it, that "patients cannot be held responsible for the estimates of their own incapacity except in the rare cases in which they seek to deceive," nevertheless these estimates often have to be taken into consideration, and may form a very important factor in arriving at a judgement in cases where gross physical signs of disease are not present. Whatever the reason, there can be no doubt that this exercise of the rights of an insured person, this initiating of a claim, has occurred in a far larger proportion of cases of "incapacity" since the year 1921 than before; and this has been the case precisely in short illnesses, and mainly with the younger generation of insured persons.

Again, it is probable that the memorandum does not attach due weight to the number of those "who, though really unfit for work, prefer to forgo the benefit which they might otherwise continue to receive rather than undergo medical examination" by a referee. Of course, every effort should be made to remove unreasonable apprehensions, but experience seems to show that the proportion of such patients to those who are actually summoned to attend referee sessions may be as high as 4 or 5 per cent.—a proportion "sufficiently large appreciably to affect the inferences that could otherwise be drawn from the facts." Such persons often do not seek a final certificate and resume work at once; rather they tend to return to work after a longer or shorter interval without receiving a final certificate at all. Nevertheless, it may still be true that "a substantial proportion of those who at any particular time are receiving sickness or disablement benefit are persons who are not incapable of work," and that in a proportion of these cases a requisite check has been inadequate in that "a number of certificates of incapacity have been issued which were not justified by the condition of the patient at the time of issue." This inference is fortified in the memorandum by two circumstances, in addition to facts such as those already cited. These are "the comparative study of the results of references of patients of different practitioners"; and the reasons given by practitioners when asked for explanations of their certification. There may easily, however, be fallacies in the former comparison, for even within such a centre as Birmingham or Manchester there may be many varieties of practice. As to the reasons given, some doctors admitted being governed by purely humanitarian considerations, while "a substantial proportion of the practitioners interviewed stated that they found themselves unable to certify strictly for fear of losing patients." The general body of practitioners may have some sympathy with these feelings in particular cases, but the attitude of mind indicated cannot be tolerated by the profession. It is clear that there is room for instruction among such practitioners, both as to the principles on which insurance schemes are based, and as to the conduct which is to be expected from a doctor even when his financial interests are involved. The Ministry and the societies are entitled to ask for firm action on the part of the medical profession, especially when it is recognized, as the memorandum says, that "the standard by which many are judged to have failed in their issue of certificates is that afforded by comparison of the results of their work with that of a large number of their colleagues," and even though "a considerable proportion of errors in certification are not due to such failings as lead also to errors of treatment."

The Departments concerned propose to take action in appropriate cases in accordance with the new Regulation recently made on the initiative of the Insurance Acts Committee. Such action includes investigation of the facts in individual cases by the regional medical officers and reference to Panel Committees of cases that appear to call for this. The recent action by the Minister of Health, taken in spite of the protest of the medical profession, in altering the freedom of an insured person to change his doctor, is not referred to in this connexion. It is obviously futile with regard to those cases for which the alteration was ostensibly made. If

a doctor is induced to be lax in his certification by the fear that he will lose his patient, he is not likely to be reformed merely because the loss may occur in six weeks instead of two. It is to be hoped that this new arrangement will speedily be abandoned.

The whole matter will be considered by the Insurance Acts Committee at its next meeting on July 2nd.

THE VALUE OF B.C.G. VACCINATION

On the occasion of his recent visit to lecture at the Royal Society of Medicine, on "Preventive vaccination against tuberculosis with B.C.G." (of which a report appears at page 1070), Professor Calmette left no doubt in the minds of his audience of the seriousness with which he regards the conservative attitude of the medical profession in this country. It is noteworthy and significant that the majority of those present at his lecture had come to hear the man; those who were well acquainted with his work mostly stayed away. This circumstance really affords the key to the present attitude of British workers towards B.C.G. Professor Calmette has failed by his animal experiments to convince the bacteriologists, and by his human experiments to convince the statisticians. His logic is excellent, but his premisses are unproven. Not until he or other workers can bring more convincing evidence in favour of his particular method of vaccination is there likely to be any general movement to adopt his methods in this country.

Let us consider the question in as dispassionate a manner as possible, leaving aside all reference to minor issues. For the sake of convenience we may deal with three main questions in turn. First of all, "Is it possible to produce by artificial methods a significant degree of immunity to tuberculosis?" There are certain diseases, of which the most important belong to the filterable virus group, which leave behind them a comparatively solid immunity. Second attacks of small-pox, measles, poliomyelitis, or distemper, for example, are uncommon, and against certain of these diseases it has proved possible to prepare a vaccine which can give rise to a definite and fairly lasting increase in the resistance of normal subjects. The immunity conferred by vaccination is rarely as sound as that resulting from a natural attack of the disease, and is by no means absolute. Vaccination against small-pox, for example, unless recently performed, does not afford certain protection against infection, though it diminishes the severity of the attack and lowers the case-mortality rate. On the other hand, there are diseases, of which tuberculosis and syphilis are outstanding examples, which leave behind them only a very slight degree of immunity. Second attacks of clinical tuberculosis are not only not uncommon, but they are, in fact, very frequent. That is to say, infection with the fully virulent bacilli may fail to produce anything but a slight and transitory increase in resistance. Is it likely, therefore, that vaccination with an attenuated virus is going to be any more successful? The direct evidence that is available on this point—namely, the prophylactic effect of living human bacilli on cattle—indicates that the immunity resulting from infection with virulent bacilli is better than that resulting from vaccination with avirulent bacilli. On purely *a priori* grounds, we may conclude, therefore, that no form of artificial immunization against tuberculosis is ever likely to produce a higher degree of immunity than that which can be produced under the most favourable natural conditions. Anyone who sets out to do more than this is, to borrow the words of Professor Neufeld,[1] chasing a phantom.

Secondly, "Has it in fact proved possible to produce an immunity to tuberculosis?" According to Calmette more than a million children have been vaccinated with B.C.G. in the last seven years or so. One would have imagined that during this period sufficient evidence might have been collected to answer this question definitively, yet it is clear from the work of Greenwood[2] in this country, of Wolff[3] in Germany, and of Rosenfeld[4] in Austria, that the statistical results are unconvincing. The fallacies in the French figures cannot be considered here in detail; suffice it to say that the groups of vaccinated and of non-vaccinated infants have not been comparable, and that the estimate of mortality which would have occurred in the vaccinated group, if vaccination had not been performed, has been based on assumptions for which there is insufficient justification. No simple criterion for assessing the value of the vaccine is available. Reduction of the death rate from tuberculosis during the first year of life among the general population is too crude a measure to employ; for, as Wolff points out, tuberculosis now contributes such a small proportion of the total deaths, that if every single death from tuberculosis in the 0–1 year age group in Berlin could be prevented, the infantile mortality rate would drop only from 78 to 76.4 per 1,000. A fall in the infantile mortality rate from all causes, which Calmette asserts to be one of the main benefits of B.C.G. vaccination, is difficult to interpret for the same reason. Moreover, if B.C.G. is so effective in this respect, why is it, Berghaus[5] asks, that the infantile mortality in France has risen during the past two or three years? If a definitive answer is to be obtained, we venture to assert that nothing short of a direct *ad hoc* investigation, with the most careful control of all factors, will suffice.

Thirdly, "Even if it should be firmly established that B.C.G. was capable of producing an appreciable degree of immunity, would it be wise to advocate its general adoption?" Professor Neufeld[6] is speaking for most students of tuberculosis when he says that the whole epidemiology of this disease, as well as the course of particular cases of tuberculosis, is determined far more by the natural constitutional resistance of the individual than by the acquisition of specific immunity, as taught by von Behring and Römer. It is surely for

[1] Neufeld, F.: *Zeit. f. Tuberk.*, 1921, xxxiv, Ergänzungsheft, 615.
[2] Greenwood, M.: *British Medical Journal*, 1928, i, 783.
[3] Wolff, G.: *Zeit. f. Tuberk.*, 1930, lvii, 1; *Deut. med. Woch.*, 1930, lvi, 1644; Ibid., 1931, lvii, 933.
[4] Rosenfeld, S.: *Wien. klin. Woch.*, 1928, xli, 809.
[5] Berghaus, W.: *Deut. med. Woch.*, 1931, lvii, 95.
[6] Neufeld, F.: Ibid., 1930, lvi, 1599.

this reason that, in the absence of all measures designed to increase specific immunity, the mortality rate from tuberculosis in this country in the 0–1 year age group fell during the thirty years 1898–1927 by no less than 86 per cent. (Dow and Lloyd[7]). Improved housing, economic and nutritional conditions, together with the gradual improvement and increasing pasteurization of the milk supply, have probably all played a part in this reduction. In 1929 only 1.4 per cent. of the infantile mortality was due to tuberculosis, and the chances against dying from tuberculosis during the first year of life were about 1,000 to 1. In the face of such highly successful measures is there any justification for advising the vaccination of every infant with B.C.G.? When it is considered that whatever protective effect B.C.G. may have probably wears off in the course of a year or two—Professor Calmette is now recommending re-vaccination at 3, 7, and 15 years—and that for a month or longer after vaccination the infant must be carefully isolated from every possible source of tuberculous contamination, it will probably be agreed by most workers that any general adoption of vaccination would be highly inexpedient. The case with infants who are born of tuberculous parents, and who must unavoidably be exposed to frequent and often heavy infection during the first few months of life, is on a different footing. We are strangely ignorant of the real risk incurred by such children, but it is legitimate to assume that it will be greater than that of children reared by healthy parents. The prophylactic vaccination of such infants might conceivably convey sufficient immunity to turn the balance in favour of the child, and it is for such a class that vaccination should be reserved. Even then it should be employed only *faute de mieux* ; the correct way to deal with these infants is to remove them to a healthy environment, as is being carried out under the highly successful Grancher system in France.

If it should be considered desirable, under these limited conditions, to give B.C.G. a trial, it is of the first importance that it should be made on a definitely experimental basis. The indiscriminate use of the vaccine by isolated practitioners will never enable us to assess its worth correctly. To judge the value of a therapeutic measure on clinical grounds alone is sufficiently difficult ; to judge the value of a prophylactic measure on clinical grounds alone is well-nigh impossible. The advantage conferred by vaccination is not likely to be great, and the only way of assessing the 5, 10, or 20 per cent. increase in resistance which it may produce is to perform the experiment in such a way that the resulting figures are really suitable for statistical analysis. If an experiment was to be conducted on cattle by the Ministry of Agriculture, and on children by the Ministry of Health or the Medical Research Council, the details of the experiment being determined by a committee appointed by these bodies comprising one or more bacteriologists, statisticians, tuberculosis and children's specialists, and veterinarians, it might be possible in the course of five or ten years to reach some conclusion as to the real value of B.C.G. vaccination. Nothing short of this is likely to extricate the problem from the welter of confusing statements which at present surrounds it.

[7] Dow, D. J., and Lloyd, W. E.: *Tuberculosis Mortality in Children*. 1930. Chaucer Press, Bungay, Suffolk.

NATIONAL COLLECTION OF TYPE CULTURES

The establishment of the National Collection of Type Cultures of Bacteria and the issue of the first catalogue in 1922 marked an important step in the development of bacteriology in this country. Before that date there was no official repository for bacterial cultures. Individual bacteriologists kept their own collections, but there was no organization for the permanent preservation of pure cultures and for the supply of correctly labelled cultures to laboratory workers who required different species of bacteria for teaching purposes or for comparison with recently isolated strains. Since this work was undertaken at the Lister Institute under the supervision of Professor Ledingham and Dr. St. John-Brooks the museum has grown to such proportions that it now contains more than three thousand different strains of micro-organisms. The demand for the cultures has increased to such an extent that more than five thousand cultures are being distributed to workers throughout the world each year. The latest catalogue[1] is an enlarged and revised edition of the list published in 1925. The different strains are catalogued alphabetically, each entry giving details of the type, group, or variety of the strain, the name of the person and institution supplying the strain, and in some cases particulars of the source from which the micro-organism was isolated. An attempt has been made to reduce the numbers of organisms appearing under the general heading of " bacterium " or " bacillus " by segregating some of the more natural groups and entering these as separate genera. This arrangement imposes a little inconvenience on those who are still accustomed to refer to bacteria by their old-fashioned names. For instance, *B. typhosus* must now be looked for as *Salmonella typhi*, and *B. tuberculosis* as *Mycobacterium tuberculosis*. In all such cases, however, ample cross-references are given for the benefit of those more familiar with the older system. The Medical Research Council expresses the hope that this new edition of the catalogue will tend to direct the attention of bacteriologists in this and other countries to the continued need for the deposition of strains of bacteria and fungi for maintenance and reference in this collection.

THE CASSEL HOSPITAL

The report[2] of the director of the Cassel Hospital for the year ending December 31st, 1930, deals as usual only with patients who have been discharged for at least one year. A very interesting feature of the present record is the unusual proportion of successes in the treatment of obsessive-compulsive conditions. Of seven patients suffering from a condition of this kind, three are now well, after six and ten months' treatment respectively, while two improved considerably. This

[1] Medical Research Council. Special Report Series. No. 64 (revised). 2s.

[2] The Cassel Hospital for Functional Nervous Disorders, Swaylands, Penshurst, Kent. Ninth Annual Report to the Committee from the Medical Director.

is so much better than the previous experience of the director or anyone else with this type of patient, that it would be unwise to regard it in the meantime as of definitely good omen in a condition that has hitherto, in the vast majority of instances in adults, borne a poor prognosis ; but it does point to a hope of more frequently successful psychotherapy in skilled hands than in the past. It is notable also that the two patients who did not improve were much older than the others, being 45 and 56 respectively, which are rather advanced years for the intensive psychotherapy of any kind of neurosis. Of the patients with anxiety psychoneuroses, two are singled out for brief description. One of them was a medical student, and the point of interest is that the treatment was largely indirect, by way of teaching him the principles of psychopathology, illustrated as far as possible from his own life, since his attitude rendered a more usual technique impossible. He made a good recovery, although his symptoms were unusually severe. It is the experience of at least one authority that medical students and doctors as a class give better results with psychotherapy than patients in any other occupation. It would be interesting to know why. The student in question was unusually intelligent ; but this is not the only factor in such cases, since it is not always present. Turning to another part of the report we note that after three years of freedom from incidents of the kind, there have been several suicides and genuine suicidal attempts. Those which occurred in patients with phobias and anxieties are of special theoretical interest. It is perhaps not very helpful to speak of them as having had a " concealed psychosis." There has, however, been a tendency for the Cassel Hospital to be put in the position of receiving more and more difficult cases as time goes on, and for those who send patients to forget that this hospital was intended primarily for the treatment of psychoneuroses. The difficulty resides partly in the length of the waiting list, which means a most undesirable delay, during which time the less seriously ill become worse, or go elsewhere, or recover spontaneously. The waiting list tends to accumulate patients who should not go to the Cassel Hospital at all. Thus, the 178 patients mentioned in the report included 14 with psychotic depressions and 12 cases of schizophrenias, the great majority of whom should not, on any consideration, have been sent there. The report continues to fill a unique position, in this country at least, as a detailed record and follow-up of results in the psychological treatment of psychoneuroses.

PSYCHOLOGY AND THE WORKER

The National Institute of Industrial Psychology opened its doors at Aldwych House the other day to a company of guests who were permitted an inspection of the various works which Dr. C. S. Myers and his staff are carrying out. To those who recall the early days of the institute, with its modest ventures into industrial psychology (such as an inquiry as to why cups get broken in teashops), it was surprising to find how large a field it now covers, and how far it has gone towards the complete " psychography " of the worker. Demonstrations were given in different rooms of the ideal lay-out and production-planning of a factory from the psychological standpoint ; of the methods for increasing the output of those engaged in repetitive tasks ; of research into the mental abilities and processes involved in the operation of assembling ; of the effects of ventilation and lighting conditions on the worker ; of the part which awareness of rhythm plays in certain tasks, and its association with muscular skill (showing, for example, how the typist, with an uncanny number of words a minute to her credit, drops into error or slowness when the syllabic rhythm disappears and she is confronted with some unaccustomed juxaposition of letters) ; of the tests required for the selection of shorthand-typists, telephonists, sorters, packers, and of others whose avocations demand great manual dexterity ; and, finally, of the degree of difficulty in changing from one activity to another. It was also shown how tests are employed for such things as colour discrimination, and how unconscious emotional reactions can be recorded by changes in the electrical conductivity of the body as shown by a psychogalvanometer. In one room a very interesting demonstration was given of tests for motor-driving. The subject sat in a dummy car with all the controls—accelerator, steering wheel, and brake—at his hand and foot. Everything, including the noise, was as in a car, except that it was not the car but the landscape which moved. The room was darkened, a little table with miniature trees and other objects was made to revolve, and this cast a shadow on a paper screen in front of the driver so that he got an illusion of roads opening out and dividing in front of him. It was stated that this realistic device afforded a means of measuring the reaction time and the judgement of distance. It occurred to us that those unfortunate people whose driving licence is suspended might get all the thrill and pleasure they want from some such expedient, without being inconvenienced by police or by cars coming the other way. Perhaps the greatest service which the institute is rendering is in respect to vocational guidance. Dr. Angus Macrae showed a number of case-studies of secondary school boys, each boy's characteristics being indicated in the form of a " psychographic profile." The institute, financed by grants by the Carnegie United Kingdom Trust, has recently carried out an experiment in the vocational guidance of six hundred elementary school children. In addition, last year over four hundred private fee-paying persons were examined and advised as to future occupation. Among cases which it has been possible to follow up after three years, it has been found that 85 per cent. have justified the institute's predictions, either by making good in the occupation which it advised, or by comparative failure in some other occupation which the institute said was unsuitable.

WILLIAM STEWART HALSTED

Dr. W. G. MacCallum has paid a handsome and ungrudging tribute[1] to the merits of that distinguished surgical investigator and operator who, in the words of Dr. W. H. Welch, was the creator of a Halsted school of surgery at Johns Hopkins University in Baltimore. William Stewart Halsted was one of the group of four—the others being Osler, Welch, and Kelly—who, when

[1] *William Stewart Halstead, Surgeon.* By W. G. MacCallum. Introduction by Dr. W. H. Welch. Baltimore: The Johns Hopkins Press ; London: Milford, Oxford University Press. (12s. 6d. net.)

it was decided to complete Johns Hopkins University by the addition of a medical school and hospital, were charged with the duty of organizing it. Their success is world-known, and the valuable investigations carried out in the laboratories of the school have conferred lustre upon it and its staff. Before he joined Dr. Welch at Baltimore in 1886, Halsted had had a successful and strenuous career in New York, where he not only operated at five hospitals, but conducted a most successful surgical class, which attracted students in such numbers that the authorities of the hospital schools of New York were seriously perturbed. Such sustained and almost feverish activity had its consequences, and Halsted fell a victim to cocaine, then newly discovered. He not only investigated its properties and devised the method of infiltration anaesthesia, but he unfortunately became an addict. The dangers of cocaine were then little known, and it is no shame on Halsted that he succumbed, but rather a great tribute to his strength of character that he ultimately succeeded in curing himself of the habit. The struggle was hard and prolonged, involving more than one sojourn in an institution for such cases. Halsted is best known in this country for his operative work on cancer of the breast, hernia, and goitre, but his greatest interest was in the laboratory rather than in the operating theatre. The process of union in wounds, and the circumstances which hindered or promoted primary union, were subjects of repeated experiments on animals, from which he learnt valuable lessons, one of the chief of which was that undamaged tissue, such as normal peritoneum, can dispose of pathogenic micro-organisms which would set up a virulent growth in the presence of damaged or dead tissue. Unlike Osler, Halsted does not seem to have been distinguished by geniality. His wit was caustic ; Dr. MacCallum frankly admits that " no one was ever at his ease with him except his close friends," and in another passage refers to his indulgence in *Schadenfreude*. Evidently his personality was a complex one ; he was so fastidious as to send his shirts from Baltimore to Paris to be laundered, but he frequented prize fights in Baltimore at a time when such exhibitions were anything but refined. These were perhaps the eccentricities of genius, and it is beyond question that Halsted was a great surgeon and surgical pathologist.

INTERNATIONAL CONGRESS OF HISTORY OF SCIENCE

The second International Congress of the History of Science and Technology, of which previous announcements appeared in our issues of January 31st and May 9th, will be opened by Mr. Lees-Smith, the President of the Board of Education, on Monday, June 29th, at the Science Museum, South Kensington, which will be the headquarters of the congress during the week. A reception will be given by the president, Dr. Charles Singer, and Mrs. Singer, at 9 p.m., at the Royal Society of Medicine. On Tuesday, Mr. G. N. Clark of Oxford, late editor of the *English Historical Review*, will open a discussion on the sciences as an integral part of general historical study, and a discussion, under the chairmanship of Dr. Welch of Johns Hopkins University, will be held the same morning on the teaching of the history of science. On Wednesday there will be an excursion to Cambridge. On Thursday a discussion will be held on the historical and contemporary interrelationship of the physical and biological sciences, introduced by Professor Baas Becking of Leyden and Dr. Joseph Needham, and the final discussion will be held on Friday, on the interdependence of pure and applied science. There will be a banquet in the evening at the May Fair Hotel. On Saturday an excursion will be made to Oxford, and the Provost of University College, London, will entertain members at an Independence Day luncheon, when the American Ambassador, General Dawes, has promised to be present. Special visits will also be made to the Royal Botanic Gardens, Kew, and the Royal Observatory, Greenwich, to Barbers' Hall, and to the Royal College of Physicians. Further information can be obtained from the honorary secretary, Mr. H. W. Dickinson, Science Museum, South Kensington, S.W.7.

PATHOLOGICAL MUSEUM, EASTBOURNE

Members who wish to send exhibits to the Pathological Museum in connexion with the Annual Meeting of the British Medical Association at Eastbourne should forward their particulars to Dr. E. A. Fiddian, Avenue House, The Avenue, Eastbourne, without delay, as these are necessary for the catalogues, and cannot be included in them unless they reach the Honorary Secretaries by June 30th at the latest. Acceptable material falls under the following heads: (1) exhibits bearing on discussions and papers to the various Sections (as set out in the *Supplement* of June 6th) ; (2) specimens and illustrations relating to any recent research work ; (3) instruments relating to clinical diagnosis and pathological investigation ; (4) individual specimens of special interest, or a series illustrating some special subject.

ROYAL SOCIETY OF MEDICINE

In accordance with the will of the late Dr. Robert Thomas Nichols, the Royal Society of Medicine offers, every three years, a prize for the most valuable contribution by a British subject towards the discovery of the causes and the prevention of death in childbirth from septicaemia. At the last meeting of the council of the society the Nichols prize was awarded to Dr. John Smith of Aberdeen, and to Dr. R. R. Armstrong and Mr. H. Burt-White (a conjoint contribution) of St. Bartholomew's Hospital. At the same meeting the Jenner medal was awarded to Dr. T. H. C. Stevenson of Somerset House. This medal is awarded to persons whose work has been pre-eminent in the prevention and control of epidemic disease.

We regret to announce the death of Baron Shibasaburo Kitisato, one of the pioneers of bacteriology in Japan, and founder of the Governmental and Kitisato institutes for infectious diseases in Tokio.

The council of Epsom College will shortly elect a girl to a St. Anne's Scholarship of £120 a year. Candidates must be not less than 9 years of age on July 29th next, and must be orphan daughters of medical men who have been for not less than five years in independent practice in England or Wales. Application must be made by July 2nd, on a form to be obtained from the secretary of the College at 49, Bedford Square, W.C.1.

HARVEIAN SOCIETY'S CENTENARY

CELEBRATION AT ST. BARTHOLOMEW'S

The celebration of the centenary of the Harveian Society of London began with a largely attended meeting at St. Bartholomew's Hospital on the afternoon of June 11th, when Dr. RAYMOND CRAWFURD delivered the address on "The place of medical societies in the progress of medicine" which was printed in our last issue (p. 1036). Sir THOMAS HORDER, president of the society, was in the chair, supported, in addition to those whose names appear below, by Lord Dawson of Penn, Sir StClair Thomson, Sir William Hale-White, Sir John Rose Bradford, Dr. Herbert Spencer, and Dr. G. de Bec Turtle.

Sir HUMPHRY ROLLESTON, in proposing a vote of thanks to Dr. Crawfurd, said that there could hardly be a more fitting setting for the centenary celebration than St. Bartholomew's Hospital, where Harvey was a physician. Harvey had tried to knit together the Royal College of Physicians and the hospital beyond any chance of severance, and to this day no one was appointed physician to the hospital unless nomination had been made by the Royal College. One of Dr. Crawfurd's predecessors as registrar of the Royal College of Physicians, Sir George Elliott, about the year 1650 went to pay his respects to Harvey, then in retirement, and found that Harvey had written a book. After much hesitation on Harvey's part, Elliott obtained permission to publish this monograph, and went away like Jason carrying the Golden Fleece. Elliott remarked that the more Harvey's books were read and admired the more reluctant he seemed to have them published, in strong contrast with some who made a great display of their work.

Sir THOMAS HORDER then presented medals specially struck for the centenary to Dr. D. Elliot Dickson, representing the Harveian Society of Edinburgh, and Dr. W. H. Welch, Professor of the History of Medicine at Johns Hopkins, representing the Harveian Society of New York.

Dr. ELLIOT DICKSON, in returning thanks, said that he was proud to represent the Edinburgh society, and also proud as a Scotsman to have heard Dr. Crawfurd's reference to the Royal Medical Society of Edinburgh.

Professor W. H. WELCH said that all members of the New York society would heartily appreciate the generous words in which Dr. Crawfurd had referred to its activities. The principal function of that society was in its lectureships, perhaps six or eight lectures being delivered during the year in the general field of scientific medicine, and it was obvious that there was no name in history which could be more appropriately used as the sponsor of such a society than that of William Harvey. Dr. Welch handed to the president an illuminated scroll on behalf of the New York Harveian Society, inscribed with cordial greetings on the occasion of the hundredth anniversary, and expressing appreciation of the significance of continuous corporate existence for so long a period:

> "An achievement so signal bears witness to the serviceableness to its members of any association. In medicine it bears evidence, furthermore, to the success of its function in the maintenance of a high standard of scholarship and its usefulness in the dissemination of learning."

Before the company separated a number of Harvey relics, displayed in the hall, were indicated and described by Mr. Geoffrey Keynes.

CENTENARY DINNER

The society's centenary dinner, given by Mr. George Buckston Browne was held on the evening of June 12th in the magnificent hall of the Grocers' Company in the City of London. Among those beside the president, Sir Thomas Horder, were H.R.H. Prince Arthur of Connaught, Professor W. H. Welch of Johns Hopkins University, Lord Dawson, President of the Royal College of Physicians, the Master of the Grocers' Company and the Master of the Society of Apothecaries, Dr. Elliot Dickson, president of the Edinburgh Harveian Society, Sir Farquhar Buzzard, Regius Professor of Medicine at Oxford, Mr. J. F. Cameron, Master of Caius College, Professor Blair Bell, President of the British College of Obstetricians and Gynaecologists, Surgeon Vice-Admiral Sir Arthur Gaskell, Dr. H. B. Brackenbury, Chairman of Council of the British Medical Association, The Rev. T. P. Conyers Barker, Vicar of Hempstead, Sir D'Arcy Power, Dr. Henry S. Wellcome, and the presidents of kindred medical societies.

After the loyal toasts had been honoured, the PRESIDENT welcomed Prince Arthur of Connaught as a newly admitted honorary member of the society, and presented to him a commemorative bronze medal. HIS ROYAL HIGHNESS then proposed the toast of "Prosperity to the Harveian Society of London." He felt it a great—though perhaps an "irregular"—honour to be admitted to membership of the society, in company with Professor Welch, the doyen of the medical profession of the United States. As chairman of the Middlesex Hospital he welcomed the opportunity of being present to congratulate the society on its centenary, and recalled that he was an honorary freeman of the Grocers' Company, which had many links with medical science. The PRESIDENT, in replying to the toast, thanked Prince Arthur for the compliment he had paid the society, which was appreciated all the more because of his intimate association with medical progress as the working head of a great hospital. In expressing gratitude to the Master and Wardens of the Grocers' Company for the loan of their beautiful hall for that dinner, he mentioned that three of Harvey's brothers were Grocers. The arrangements for the centenary had been most admirably carried out by the indefatigable treasurer, Dr. Turtle, and the honorary secretaries, Mr. Wakeley and Dr. Cove-Smith, and all were indebted to Mr. Buckston Browne for his generous hospitality that evening. Sir Thomas Horder recalled the names of some of his famous predecessors in the presidential chair, and ended with an eloquent tribute to the work and inspiration of William Harvey.

> "It is always difficult for us to speak of William Harvey in anything like moderate language. He is so easily the central figure in our annals, and the founder of scientific medicine in this country. As Caesar appeared to Cassius in relation to the Roman Republic, so Harvey appears to us in relation to British medicine, but without the stigma imputed to the great Roman by his lean and hungry conspirator: '. . . he doth bestride the narrow world like a Colossus, and we petty men walk under his huge legs and peep about and find ourselves dishonourable graves.' Harvey did a much greater thing for medicine than to establish beyond all doubt the physiological principles governing the circulation of the blood. He introduced rational and scientific methods into the chaos of empiricism, speculation, and wild hypothesis. This reference to a principle does not detract from the momentous value of Harvey's great discovery: it rather enhances it, in that this discovery exists for all time as a model of what may be achieved along the lines, and following the principles, which Harvey laid down."

The health of the visitors was proposed with graceful references to individual guests by Sir STCLAIR THOMSON. This feast, he said, gave an opportunity for the mingling of men of different occupations, as well as of men working in different branches of the same profession. Harvey, a man of wide humanity and culture, would have welcomed this occasion, for had he not exhorted his brethren to "dwell together in loving friendship"? Professor WELCH, in response, made a charming and spirited speech of appreciation for the way in which "such things are done in London." He regarded

centenary celebrations as very valuable and interesting things, which appealed to him particularly as contributions to the history of medicine. Lord DAWSON, who also replied, spoke of Professor Welch as a citizen of the world, exemplifying the unity of purpose of the English-speaking medical profession. He himself, during his visit to Canada and the United States last year to attend the Annual Meeting of the British Medical Association in Winnipeg, had observed the inexhaustible energy and enthusiasm of their octogenarian guest. On behalf of the Royal College of Physicians, with its long and intimate associations with Harvey, Lord Dawson congratulated the society on attaining its hundredth year.

PILGRIMAGE TO THE HARVEY TOMB

The final event of the celebrations took the form of a pilgrimage to the tomb of William Harvey at Hempstead Church in Essex, near Saffron Walden. A party of about sixty, headed by Sir Thomas Horder, Sir D'Arcy Power, Sir StClair Thomson, Dr. Herbert Spencer, and Professor Welch, journeyed by road from London on the morning of Saturday, June 13th. At Hempstead Church a brief service was held, and the Bishop of Colchester gave an address. Harvey, he said, was a man of whom any age and country would have been justifiably proud. The more a good life and good work was made known, and the more a brotherhood such as the Harveian Society grew, the better for humanity. In that church lay the mortal remains of the great doctor, and a suitable monument had been erected there in honour of one whose fame was world-wide. He thanked the society for presenting to the church, in commemoration of the present occasion, a beautiful silver platen, to be used with the Elizabethan chalice belonging to the church, the original platen which went with it having been lost. The new platen bore the crest of the Harveian Society and the date of its foundation and of the gift. It was also good news to Hempstead that the Harveian Society proposed to undertake the reconditioning and rehanging of the church bells when the tower was rebuilt, and to give a new bell to celebrate the event. The old bells, now in a bell-shed in the churchyard, were dated, one of them 1520 and the other 1575. For the rebuilding of the tower the sum of £2,700 was in hand or promised, and a further £3,000 was required. Donations were still coming in, and those responsible for the church were more indebted than they could express to the medical profession, who had shown that it was a labour of love to do all they could for the preservation of the temple which contained the Harvey shrine. Finally, said the bishop, they had assembled that day, not merely to praise famous men of old, who rested in peace and whose works followed them, but also to thank God for the work of the medical profession. Doctors of to-day went about doing good to the bodies and minds and souls of men. In every age they were among the world's best philanthropists and most sacrificing missionaries. Very few men had more opportunities of service to their kind. The healing and relief of suffering was a godlike task, and he trusted that there would never be wanting in this dear land physicians of like spirit to William Harvey, who employed heart and brain in the service of their fellow creatures and for the glory of God.

After the address Sir Thomas Horder, president of the society, accompanied by Dr. de Bec Turtle, Mr. Cecil Wakeley, and Dr. R. Cove-Smith, brought the platen to the altar, where it was dedicated by the Bishop. Subsequently the visitors inspected the Harvey Chapel and other objects of interest in the church, and even descended into the vault, where rest the coffins of various members of the Harvey family. The pilgrims were entertained to lunch in the vicarage garden, and on the return journey a halt was made at Rolls Manor, Epping Forest, where seven generations of Harveys lived, and which is now in the possession of Lady Lloyd, widow of General Sir Francis Lloyd, the Lloyds about a hundred years ago becoming related to the Harveys by marriage. In a room specially built for the purpose are shown the Harvey portraits, including William Harvey, with his father, six brothers, and sister or sister-in-law. Sir D'Arcy Power gave a brief account of the Harvey family. Harvey, he said, was known elsewhere as an acute thinker and able administrator, but here in the home of his family he was revealed in a domestic role—for singularly strong bonds of affection united the Harvey family—and also as a connoisseur and collector of objects of art. Some of the Harveys made fortunes in business, and others, notably Admiral Sir Eliab Harvey, gained distinction in the national service. Before the party returned to London Sir Thomas Horder expressed the thanks of everybody for the charming hospitality of Lady Lloyd.

Nova et Vetera

DOCTORS' BILLS

Mr. N. F. Ticehurst, F.R.C.S. (St. Leonards-on-Sea), writes:

With reference to the notes on ancient doctors' bills under "Nova et Vetera" in the *Journal* of October 4th, 1930, it occurs to me that you might like to print the accompanying account. I found it a year or two ago while going through the miscellaneous documents in the parish chest at Sedlescombe, near here, to sort and calendar them for the present churchwardens. The date is slightly anterior to any you quote, and, though not written in full, the year is 1689, as the writing corresponds with other documents of that period in the collection, and John Huckstep was overseer at that time. Of John Martin I can learn nothing, but perhaps you have records that might reveal something of him. I should hazard a guess that he lived at Battle, on which town Sedlescombe has always been dependent for its medical services. Martin has always been a well-known name there.

	li.	s.	d.
Aprill ye 11th: 89			
A Clister for ye Maide...	00	00	08
A Paralytic deobstructiue gargle ye boy ...	00	01	06
Bleeding him under the tongue	00	01	00
A Blister for ye Maides necke	00	00	08
A Cordiall Coroberateing Apozem for them...		02	08
A Cordiall Cephalic Julepe for them... ...	00	01	06
A strenghteninge Restringent Electuary ye Maide	0	01	06
Four Narcotic pills	0	00	06
A Paralytic Electuary ye boy	0	01	06
Twelue Hypnoctic pills	0	01	00
Cordiall strenghteninge Ingredients for 3 quarts of Liquor	0	01	06
More of the same	0	01	06
A strenghtening Aperitiue Electuary ...	0	01	08
A Cathartic Electuary ye girle for seuerall doses	0	01	06
	0	18	08
ffor Care and visites	00	06	00
Totall sume	1	04	08

May ye 6th: 89.

Then recēd of Jon Huckstepe Ouerseare The sume of one pound four shillings and eight pence being in full of this Bill for Phisicke administred to Ann Blatcher and Jon Henlly of the parrish of Sedlescombe: Recēd p me Jon Martin 1li. 4s. 8d.
T

This bill, discovered by Mr. Ticehurst, is of interest as carrying further back than did that of Fairclough of Nayland (*British Medical Journal*, 1930, ii, p. 576) the evidence of expenditure on the medical care of the poor under the Poor Law of Elizabeth. The bill is typical of the pharmacy of the time, and needs no comment except some explanation of the term "Apozem." This, according to the *New English Dictionary*, is an obsolete word meaning a decoction or infusion. Mr. Ticehurst is to be congratulated on his find, and our readers are much indebted to him.

JOHN HAYGARTH OF CHESTER

Dr. George H. Weaver of Chicago[1] has recalled to his colleagues of the Society of Medical History of that city the name and fame of Dr. John Haygarth of Chester (1740–1827), who has not been forgotten in the land of his birth and death.

The late Dr. John Elliott of Chester contributed to our pages in 1913 (vol. i, p. 235) an excellent sketch of Haygarth's career, illustrated with eight illustrations, and a succinct account of him is also to be found in the *Dictionary of National Biography*. Even those recognitions of Haygarth's importance as a pioneer in public health, epidemiology, and medicine leave something to be desired in publicity, and we welcome, therefore, the fuller account of him, of which Dr. Weaver has sent us a reprint.

Dr. Weaver quotes from Dr. Elliott's "Nova et Vetera" article, and agrees with his expression of opinion that the work of Haygarth had not yet received adequate recognition. He was, as Dr. Elliott said, a medical pioneer who explored more than one path of advance in medical science. His work on inoculation for small-pox was eclipsed by Jenner's discovery of vaccination, but in other directions he made notable advances. His career is particularly interesting to Americans because of his correspondence with Benjamin Franklin and with physicians in the United States.

His well-known "Letter to Dr. Percival on the Infectious Fevers," and his address to the College of Physicians on the American Pestilence, seem to have irritated the thin skin of one Dr. Charles Caldwell, who wrote "Vindicating the Right which the Faculty of the United States have to Think and Decide for themselves respecting the Diseases of their own Country, Uninfluenced by the Notions of Physicians in Europe." But it was not only in America, in 1802 and later, that medical controversy was disfigured by irrational violence.

[1] *John Haygarth, Clinician, Investigator, Apostle of Sanitation.* By George H. Weaver, M.D.Chicago. Reprinted from the *Bulletin of the Society of Medical History of Chicago*, 1930, iv, 156.

Australia

[FROM OUR CORRESPONDENT IN SYDNEY]

The Royal Australasian College of Surgeons

The fourth annual meeting of the College of Surgeons of Australasia (which includes New Zealand) was held in Sydney during the four days ending April 2nd, 1931. The period was fully occupied with business, lectures, and demonstrations, no time being allotted officially for social functions. There was a good attendance of members. Perhaps the most important business was the announcement that a Royal Charter had been granted to the College, which will henceforth be known as the Royal Australasian College of Surgeons. The adoption of this name will preclude the possibility of confusion with the Colleges of the United Kingdom and of the United States. The journal of the College, which has hitherto been known as *The Journal of the College of Surgeons of Australasia*, will in future bear the title *The Australian and New Zealand Journal of Surgery*. For a young College this journal is a very creditable production; its general appearance and style have already evoked favourable comment from overseas. Possibly the granting of the Royal Charter will assist in the firmer establishment of an *esprit de corps* and a jealous pride in the reputation of the College which will be reflected in the work of the Fellows and their writings, with further improvement in the journal. The College is so young that it has barely had time to develop an individuality of its own, the influence of the British and American Colleges being still apparent. No doubt in the course of a few years the Royal Australasian College of Surgeons will be as typical of the Dominions as other Australian and New Zealand institutions; in common with these it will, of course, bear the marks of the influence of older Colleges, especially those of the United Kingdom.

An Association of Physicians

An event of some importance during the year 1930 was the formation of the Association of Physicians of Australasia (including New Zealand). The founders set out with the object of moulding the association on the lines of the Association of Physicians of Great Britain and Ireland. The stated purpose of the Association is "the advancement of internal medicine and the promotion of friendship among physicians." Meetings will be held twice a year in one or other of the capital cities. At these meetings members and visitors will contribute scientific communications on various subjects. An express rule of the association is that no papers shall be read at the meetings, and no reports of the proceedings shall be given either to the lay or to the medical press. In regard to qualifications for membership the following rules are laid down in the constitution. The association "shall consist of ordinary members, not more than ten associate members resident in New Zealand, and honorary members. It shall at first contain not more than seventy ordinary members, who shall be physicians actively engaged in the teaching of medicine, men of distinction in medicine and the allied sciences, and physicians recognized by the council as eligible."

Sir Henry Maudsley and Dr. R. Scot Skirving have been elected honorary life members of the association as a tribute to their services to medicine in Australia. The president of the association is Sir Richard Stawell, the honorary secretary Dr. S. V. Sewell, and the honorary treasurer Dr. S. O. Owen. The following have been elected members of the council: Drs. C. B. Blackburn, E. W. Fairfax, A. W. Holmes à Court, H. H. Turnbull, K. Hiller, S. A. Smith, H. J. Ritchie, L. S. Latham, M. D. Silderberg, C. H. Kellaway, S. F. Hone, C. T. Ch. de Crespigny.

Sydney University

The opening of university activities this year marks the commencement of a new era in the teaching of medicine at Sydney. The whole curriculum for the teaching of students of the fourth, fifth, and sixth years has been revolutionized, and a system has been evolved which is unique in Australia and probably in the world. The system is in accordance with the scheme outlined by Professor C. G. Lambie, the recently appointed Bosch Professor of Medicine, in an address which he delivered in October, 1930 (published in the *Medical Journal of Australia* of January 31st, 1931). It is at present in operation, and gives every prospect of success. One of the most important objects is the correlation of the various arts, crafts, and sciences which go to make up the science of medicine, so that these may be moulded into one and presented to the student as a whole. The watertight compartments of the various branches of medicine are eliminated, and the special subjects are presented, not by means of a series of lectures over a given period, but by lectures delivered at such times as best fit in with the general scheme. For example, in his fourth year the student receives instruction in the pathology of the organs of respiration; at the same time lecturers in medicine and surgery discuss disturbances of function of these organs, the oto-rhino-laryngologist the upper respiratory passages; the general therapeutics of the diseases of the organs of respiration are dealt with, and instruction is given in the materia medica and the prescription of the drugs

employed. During the fourth year students have lectures from the dermatologist on the general examination of the skin, and during the fifth year lectures on specific diseases of the skin, the dermatological manifestations of systemic diseases being studied at the appropriate time. The dermatologist assists in the combined attack on the subject of syphilis, by paediatrician, physician, surgeon, and neurologist, and deals with allergic skin manifestations when the lecturers in medicine are discussing allergy. A good illustration of correlation of subject-matter is that instruction concerning infection is given by the bacteriologist, while the pathologist discusses inflammation and repair, the surgeon wounds and sepsis, the physician pain and fever, and the pharmacologist antiseptics and analgesics. All teaching in medicine and surgery is given from a clinical standpoint. Lectures in the fourth and fifth years, save those in pathology and bacteriology, are delivered at the Royal Prince Alfred Hospital, the Children's Hospital, or the Coast Hospital. With the patients before him the lecturer not only illustrates the points of his argument, but also demonstrates how by a consideration of the abnormal individual and by the study of pathology, a knowledge of disease is achieved and increased, provided there is as a basis an understanding of physiology and anatomy. The fourth year is devoted to the teaching of pathology and bacteriology, general semeiology, and general therapeutics; in the fifth year nosography, special semeiology, and specific therapy are dealt with; in the sixth year chief emphasis is laid on a consideration of differential diagnosis and prognosis. Although no lectures in pathology are given after the end of the fourth year, it is intended to appoint from among the students pathological clerks whose duty it will be to make necessary pathological investigations of patients in the wards of the hospitals. The student will thus be forced to realize that pathology cannot be divorced from a study of medicine. In the final year the teaching is entirely devoted to work in the wards. Throughout the three years the students are given ample opportunity for clinical work, their clinical teaching being facilitated by the formation of smaller classes. The sequence of the various courses of instruction throughout the curriculum during these last three years follows a definite and carefully thought-out plan. Disturbances of all functions are dealt with system by system during the fourth year, with the exception of those of the genito-urinary system, which is studied in the fifth year, when instruction is given in gynaecology followed by obstetrics. In the fifth year, as soon as the lectures on infectious diseases have concluded the study of preventive medicine is commenced. Medical jurisprudence and medical ethics are dealt with in their natural place at the end of this year.

The adoption of the new system has necessitated the appointment of new lecturers and tutors. The subjects of therapeutics and materia medica have been brought into the department of medicine, and the first assistant to the professor of medicine lectures on general therapeutics and applied pharmacology. A building which will contain the various departments concerned with the work of the fourth and fifth years, and in which all lectures will be given, is to be erected in close proximity to the Royal Prince Alfred Hospital. Thus clinical material will always be readily available. An important feature in the design of the building is the nearness of the lecture theatre to the pathological museum. Large laboratories, fully equipped for research in every branch of medicine and surgery, will be provided. When the suggestion was made for the erection of this structure and for the institution of the new system of teaching, the fear was expressed that the clinical schools at Sydney and St. Vincent's Hospital might be abolished, but this is not contemplated.

Scotland

The Blind in Scotland

The annual report of the Royal Blind Asylum and School, Edinburgh, shows that upwards of 2,000 blind persons have been educated or employed by the institution since its foundation. Although the industrial department has felt the prevailing trade depression, this has to a certain extent been met by the introduction of new employments for the blind. The accommodation for the technical training branch has been extended during the year by the transfer of the administrative department to a new building at Gillespie Crescent, Edinburgh. There are now twenty-two blind persons under training in the workshops of West Craigmillar, and ninety in those at Gillespie Crescent. During the year under review the sales of material manufactured by beneficiaries amounted to £34,483. During the year £440 had been expended on grants to blind persons in various parts of the country, while a sum of £500 had been set aside for this purpose in the current year. The income from ordinary subscriptions had been £7,608, as compared with £8,097 in the preceding year. The Scottish National Institution for Blinded Sailors and Soldiers had admitted three additional men for training during the year, and had now seven men under training at Newington House. In the Newington House workshops thirty-seven ex-service men were employed, and in a workshop in Glasgow twenty-two more. Men trained at these institutions were now resident in various parts of the country, and were supervised by the institution. All these men received an allowance from the institution of not less than 10s. per week in addition to their pensions.

The Scottish National Federation for the Welfare of the Blind held its meeting on June 11th and 12th in Dundee. Mr. James Balfour, who presided, said that the facilities which were now available for blind people in this country were in advance of those in any other country. There were roughly 9,000 blind people in Scotland, of whom approximately two-thirds were over 50 years of age. Dr. W. G. Sym (Edinburgh) read a paper on the myopic child. In order to educate such a child without doing further harm to the eyes, he said that the first point was that the child must wear proper glasses constantly. He did not agree with the plan of associating the myopia class with the blind school; he was convinced that the training for myopics should stand by itself. A paper was contributed by Mr. William Stone, superintendent of the Royal Blind Asylum, Edinburgh, dealing with the welfare of the blind under the Local Government Act, 1929. He referred to the fact that infantile blindness was decreasing, and it might be that in the course of a generation a baby blind from birth would be a rarity. Technical training for the blind was a costly process; and it was unfortunate that so many of them could not be trained for anything. It had always been considered that the natural outlet for the capacities of the blind lay in the use of their hands, but this was not really true; only a small number of blind people were really gifted as craftsmen. Others might become good craftsmen by dint of hard work and patient teaching, but people who worked with blind children saw their difficulties in dressing, etc. It was generally supposed that the blind had a delicate sense of touch, but the sense of touch in the average blind person was rather less acute than in those who saw well. In the future, when these facts were better known, more would be done for the blind by putting them into commercial life rather than condemning them to handwork, which was the least suitable kind of

work for them. In this direction much more had been successfully done in the United States than in this country.

Gilgal Hospital, Perth

This hospital, which has been designed and erected by the directors of James Murray's Royal Asylum, Perth, is a self-contained block of forty beds on an adjacent site. It is intended solely for voluntary patients, especially for those whose malady is slight or of short duration, and who may be apprehensive of possibly harmful or painful contacts with invalids of a more confirmed or different type. The property (Gilgal), on which the new hospital has been built, extends to about ten acres. It is situated on the slopes of Kinnoull Hill about 200 feet above sea-level, and is about one mile from Perth, on the east side of the river. The private rooms, verandas, and garden face south and west, and it commands to the north a magnificent view of the valley of the Tay and the mountains beyond. The hospital consists of two wards and a central admission block, the latter containing on the ground floor a medical office, reception room, surgery and dental room, electrical treatment room, dispensary, and laboratory, all connecting with the main entrance hall. The electrical treatment room is fitted with an ultra-violet projector, radiant heat lamps, and apparatus for faradic, galvanic, and Schnee baths.

Cooking is done by gas, oil fuel being used for both the central heating and the supply of domestic hot water. Rooms are heated by a panel system which dispenses with cumbrous radiators, prevents convection air currents and dust, and ensures an adequate supply of radiant heat. Each ward unit comprises a dormitory with eight to eleven beds, a day-room or lounge and dining-room, six private bedrooms, three observation private bedrooms, two bathrooms, a clinical treatment room, and a veranda. The south side of each dormitory consists of three sheets of glass with controlled opening. Floors throughout are of oak, the doors and other fittings are of Lagos mahogany, and all metal parts are chromium-plated. The cost of the hospital, including the laying out of new roads, grounds, etc., is approximately £21,500.

Selkirk Hospital

The annual meeting of the Selkirk Cottage Hospital Association, which manages Viewfield Nursing Home, was held on June 4th under the presidency of Provost Ballantyne, who intimated that the endowment fund of the hospital has been increased by £900 during the past year, and now amounted to over £9,300. The committee recommended that subscribers to the hospital should be charged at the rate of £3 per week in maternity cases, and that for private rooms they should pay £1 less than non-subscribers. In the course of the year, 197 patients were treated under this scheme of payments, including 157 from the burgh of Selkirk and 40 from the county.

Dundee Royal Infirmary

The annual meeting of Dundee Royal Infirmary was held on June 8th. Mr. Athole F. Stewart, who presided, said that he did not think the majority of people realized the acute nature of the financial problem with which the directors of the hospital were faced. On its present basis the cost of running the institution for a week amounted to approximately £1,000, while the revenue for the corresponding period was about £600. There had been a deficiency of practically £23,000 in the past year. This meant that if the expenditure were to be kept below the income, 4,500 people who needed attention within the infirmary would have to be turned away annually. The reserve fund was now practically exhausted, and the directors appealed to the citizens of Dundee and to the inhabitants of the neighbouring counties to evolve some scheme which would ensure that the efficiency and usefulness of the Royal Infirmary would not be impaired for lack of funds. It was agreed that a sum of £24,583 should be withdrawn from the reserve fund and applied to the extinction of the deficit on the accounts of the infirmary and convalescent home. It was also agreed that a sum of £10,000 should be expended for the provision of a new pathological department and mortuary.

Dr. William Muir

The sum of £581, collected during his illness by the patients of the late Dr. William Muir, who died in March, has been presented to his family as a testimony to the work he had done in the Davidson's Mains district (near Edinburgh) for over thirty-five years. Dr. Muir graduated M.B. at Glasgow in 1888, and, in spite of a busy practice, took a keen interest in public affairs, being chairman for some time of the local school board.

Ireland

Health Services in Northern Ireland

In the Northern House of Commons Professor R. J. Johnstone, M.D. (Queen's University), has expressed disappointment with the Home Office because he expected it would have tackled the problem of local government long ago and would have effected a great many definite improvements. Most of the patients who came to the dispensary were not paupers ; they were very often respectable working people, and it was a great mistake in these days that the taint of the Poor Law should hang over that important medical service. He hoped that the Government would use the farm at Richhill as an epileptic colony. At the present time epileptics, unless their relatives or friends could look after them at home, were segregated in a workhouse. If a colony were established they could be placed out in the open air, and the workhouses would be relieved of an unnecessary population.

Drumcondra Hospital, Dublin

The annual meeting of the Drumcondra Hospital was held recently under the presidency of the Lord Mayor of Dublin. According to the report for 1930 the work of the hospital was well maintained, and further improvement had been effected in the financial position. The outstanding event of the year was the institution of the new outdoor annexe—the Santry Shelter—for the accommodation of patients whose complaints responded to open-air treatment. In appealing for further financial support the committee considers that in view of the rapid development of the neighbourhood, the work of the hospital is bound to become heavier. It states that the Drumcondra Hospital did not participate in the sweepstakes scheme, but relied, as in the past, on the material help of those who realized that the relief of suffering was a responsibility and a privilege for each individual member of the community. The report of the medical board recorded that 494 patients had been treated in the hospital wards, of whom 477 had been admitted during the year ; while the extern dispensaries had been attended by over 3,000 persons. Deaths numbered 19, a mortality of 3.8 per cent.

Extension of Sunshine Home

In the annual report of the Sunshine Home, Stillorgan, County Dublin, it was stated that the new wing would cost £1,200, a sum which was in hand. Funds were urgently needed, however, for the maintenance of the new beds. During the year 1930-31 the number of cases dealt with and the number of children discharged cured was larger than in the previous year, and as the large number of

cases awaiting admission continued to grow, the committee had decided to extend the institution. Dr. Angela Russell said that the Home prevented and cured the diseases of infancy. Every child in the Home had a chance to become a healthy and useful citizen. The Sunshine Home helped to undo the harm which the slums had done. The report was adopted unanimously.

County Sligo Mental Hospital

In the annual report on the Sligo and Leitrim Mental Hospital, Dr. J. Dunne, resident medical superintendent, states that the treatment in the majority of instances, where definite causes cannot be assigned, is symptomatic. There were only a few types of mental disease to which a definite form could be assigned—for example, general paralysis of the insane, encephalitis lethargica, and confusional insanity. The hospital was lacking in two respects—namely, it was seriously overcrowded, and, instead of wards being bright, cheerful, and well ventilated, they were dark and stuffy, which was necessarily depressing, and was bound to defer seriously the chances of recovery.

India

Stillbirth and Neo-natal Death

With the aid, and under the auspices, of the Lady Irwin Research Fund, Dr. Christine J. Thomson has completed a preliminary inquiry into stillbirth and neo-natal death in India. Her report has now been published by Messrs. H. K. Lewis and Co., Ltd., price 1s. 6d. net. The work began in 1929 at the Haffkine Institute, Bombay, as part of a wider inquiry into maternal and infantile mortality being conducted by Margaret I. Balfour and her colleagues under the Indian Research Fund Association. It was subsequently continued in Madras, where a larger amount of post-mortem material was available. The inquiry was originally planned to last for one year, and it was hoped to base the pathological findings on the examination of at least 300 cases, but, owing to various religious customs interfering with necropsies, the series comprised only 200 cases. It was then decided to issue an all-India questionary, with a view to obtaining information from the obstetrical registers of the various women's hospitals or special wards regarding the main factors leading to stillbirth and neo-natal death throughout the country. These data, relating to more than 3,700 cases, were classified according to the approximate primary causes of death, and served as a useful check upon the findings of the post-mortem series.

In her report Dr. Thomson deals with the special conditions in India which lower the resistance to disease, and particularly the purdah system; the widespread employment of untrained native midwives; the conservatism in obtaining hospital treatment, even for complicated cases; and the administrative difficulties of providing adequate medical aid for a large rural population. A special effort was made to estimate the occurrence of syphilis as a factor in stillbirth and neo-natal disease; it appeared to play a much smaller part as a primary cause than has been imagined hitherto. Each necropsy included a comprehensive search for this infection, while several series of blood tests were performed in Bombay, Calcutta, and Madras, with the co-operation of various Government laboratories; the positive results ranged from 12.5 to 13.6 per cent. In the post-mortem series the incidence of undoubted syphilis was 14.5 per cent., while a further 4 per cent. were classified as "probable," or "possible," cases of this disease. The actual deaths primarily due to syphilis amounted to 16.5 per cent. No fewer than 83.7 per cent. of the syphilitic foetuses were macerated, but of the total macerated foetuses in the whole series only 36.4 per cent. were syphilitic, a figure in close accordance with findings in Western countries. The complications of labour accounted for a larger percentage of stillbirths and neo-natal deaths in the majority of cities or districts of India investigated than in Great Britain, though for Bombay, Calcutta, and Madras the figures were approximately the same. Ante-partum haemorrhage showed a somewhat lower figure than in the West, but the foetal or neo-natal mortality was relatively high. There was a marked variation in the geographical distribution of eclampsia, and its severity appeared to vary considerably in different localities, the maternal mortality in Calcutta—owing to various factors—being extremely high. A much higher proportion of the deaths was attributable to "acute maternal disease" than is the case in the West. The incidence of malaria was low, but this would necessarily be higher in epidemic regions. The "anaemias of pregnancy," while a potent factor in maternal mortality, did not play a large part in the causation of foetal or neo-natal death as a whole. Margaret Balfour assessed 35.6 of the maternal deaths in India as a whole as due to this cause, but in the present series it was incriminated in only 2 per cent. of the foetal deaths. Dr. Thomson considers that this figure is probably an underestimate of the true occurrence of the disease, but believes that it was undoubtedly much less concerned with the foetal and neo-natal deaths than were labour complications. There was, however, an exceptionally high mortality from this cause in certain parts of India—for example, in Shikarpur in Sind. Congenital malformations were not more common in India than elsewhere, but higher percentages of malformations, and diseases of the urinary system, were found than hitherto reported in Great Britain. The incidence of placental disease was similar to that in the West, and leucocytosis was present in more than 10 per cent. of placentas examined. Prematurity is essentially an important factor in neo-natal death in the East, though no scientific data are yet available regarding its actual occurrence as a primary cause of stillbirth and neo-natal death.

Cholera Outbreak in Bombay

In 1928 Bombay experienced an unusually high death rate, and the figure rose further in 1929 owing to a heavy increase of epidemic diseases in the presidency, with a serious incidence of cholera and malaria in Sind. From 1918 to 1922 there was a steady improvement as regards the total mortality figures, but this was followed by a rise, 1929 being the worst year in this respect during the last decade. The cholera epidemic in 1929, as in previous years, entered Sind from the Punjab, and was spread along the canals and by human infection. The people in several areas became panic-stricken and scattered in all directions, thus contributing to the wide extension of the disease throughout the province. Energetic preventive measures were adopted, and most of the local authorities arranged for the sterilization of all drinking water, and the maintenance of stocks of potassium permanganate powder and pills. A large number of inoculations were performed, and educational activities were intensified. There is reason to believe that in 1930 the cholera incidence was much less. The control of the various religious fairs during 1929 was good, and in many cases there were no outbreaks of disease of any kind. The wells were treated systematically with permanganate solution; river beds were guarded day and night, in order to avoid contamination of the water used by the pilgrims for drinking and bathing; chlorinated water was provided and used; and the segregation was successfully arranged of infected persons and their contacts attending these fairs.

Forecasting Epidemics

Sir Leonard Rogers has for many years been endeavouring to trace a connexion between the incidence of cholera, small-pox, and plague and meteorological conditions. In the *Indian Medical Gazette* of April, 1930, he gave a forecast of the probable incidence of these conditions during that year, and in the issue of the *Gazette* for last Feburary he shows how the event proved him to be substantially correct, especially as regards cholera and plague. He submits also in this later issue a forecast of the probable variations of these three diseases in India during 1931, based on the meteorological observations of the previous year. Once again in 1930 the south-west monsoon rains were very regularly distributed and approximately normal in amount over the greater part of India, thus rendering the incidence of epidemic disease rather difficult to foretell. Sir Leonard Rogers believed that no very serious epidemic of cholera was likely to occur during 1931, or, in the case of Assam, Bengal, and South-East Madras, during the usual cholera season of those areas from November, 1930, onwards. No very severe small-pox epidemic is probable anywhere during the current year, though the incidence of this disease is likely to be above the average of 1930 in the Punjab and North-West Frontier Provinces. In the Central Provinces there will probably be fewer outbreaks than in 1930. A low plague incidence is expected in Bihar and Orissa, the United Provinces, and the South Deccan ; about the average figure for the Central Provinces and North Deccan ; and some slight excess over the recent prevalence in the Punjab. Sir Leonard Rogers received in London the information on which his conclusions are based in the form of data supplied by the Director-General of Observations in India.

Correspondence

THE HARVEY TOWER

SIR,—We have to-day completed a delightful three-day celebration of the centenary of the Harveian Society of London. The celebration has been most admirably arranged, and reflects great credit on the society's officers. The address by Dr. Raymond Crawfurd at St. Bartholomew's Hospital, the dinner at the Grocers' Hall, the address by the Bishop of Colchester at Hempstead Church, and the reception by Lady Lloyd were all excellent. The doyen of the American physicians, the venerable but ever-youthful Dr. Welch, attended all these celebrations, coming, like Catullus to his brother's tomb, *multas per gentes et multa per aequora vectus*. Replying for the guests at the dinner, he said he found it hard for an American in the beautiful surroundings of the Grocers' Hall to express his feelings adequately ; that he found that the British surpassed all other nations in conducting these festivals : "*You do these things well.*" To-day, Sir, he visited Hempstead Church and the Harvey tomb and monument, inspected the brasses, including those to the memory of the Huntingtons (1498), the ancestors of the American family of that name, inspected the fallen bells, and viewed the rubble heaps in the churchyard—the remains of the Harvey Tower. When I think of the way Americans treat *their* heroes, of the home of Washington and the memorial to Lincoln, I cannot help feeling that the Americans would not have left the ruined tower of Harvey's church unbuilt for half a century.

Next year will be celebrated another centenary—that of the British Medical Association—under the presidency of Lord Dawson, the President of the Royal College of Physicians. The distinguished foreigners who will attend it will wish to visit Harvey's church at Hempstead. The committee of the Harvey Church Tower Memorial Fund has collected about £2,500 ; the Harveian Society of London has collected about £200 for reconditioning the bells. These are about half the sums required. If each member of the Association who has not already subscribed to the Harvey Memorial Fund will send 5s. to the honorary secretary, Dr. Arnold Stott (58, Harley Street, W.1), the tower will be rebuilt and the bells rehung by the date of the Association's centenary. Is it too much to ask?—I am, etc.,

London, W., June 13th. HERBERT R. SPENCER.

INTERNATIONAL LEAGUE AGAINST RHEUMATISM

SIR,—Will you allow me to call the attention of your readers to a matter connected with the International League against Rheumatism, which I think is deserving of their serious consideration? This league was founded some six years ago in order to bring together the many scattered workers (groups and individuals) who were seeking to grapple with rheumatic diseases in different countries ; to arouse interest in the large and vital medical and economic problems which these diseases present ; and by mutual international studies and discussions to clarify the confusion and uncertainties existing in nomenclature, etiology, diagnosis, and treatment.

The chief activities of the league have been: the formation of a number of national committees in Europe and America, many of these now flourishing and valuable medico-industrial organizations ; the establishment of a central information bureau and library in Amsterdam, with a card index of literature on rheumatic diseases ; the holding of periodical international congresses ; and the production of an international organ (the *Acta Rheumatologica*), of which the ninth number has just been published. Keen and fruitful discussions have already taken place at Amsterdam, Budapest, and last year at Liége and Brussels, the next being arranged for Rome in 1932.

It is obvious that such a league, inspiring and co-ordinating the work of other bodies, cannot be conducted without a reasonable expenditure. Owing to the amount of ungrudging voluntary service given, especially by its honorary secretary Dr. van Breemen, these expenses are very low compared with the bulk of work achieved. The small income is derived from contributions from Government funds, national committees, public bodies, and private friends, also from the sale of the journal. The audited statement of accounts for last year shows a considerable deficit, and I understand that the chairman of the Finance Committee, Professor Prusik of Prague, is making some appeal to various Continental committees, and some time ago also approached the British Red Cross Society in England.

I write to ask whether the medical profession in this country will not make some personal contribution to this important work. In England we have benefited in recent years not a little from the work of the league, having owed to it, in the first instance, an awakened public interest and the actual materialization of a "Campaign against Rheumatism." And yet, apart from three or four individual donations, nothing has been sent from our country towards the expenses of the league. As an Englishman (and incidentally as president of the league) I cannot but feel this position to be unworthy. Committees and individuals from far poorer countries than our own give regular annual grants, and one would like to see a fund of at least £200 a year subscribed from our own country. There is no nation in the world so deeply concerned in the solution of the problem of the suffering and economic loss brought about by the rheumatic diseases as Great Britain, and I hope that

some of my medical colleagues will come forward and give a generous lead in this matter.

Cheques can be sent to the honorary treasurers of the Ligue Internationale contre le Rhumatisme, at their bank, Ontvang-en Betaalkas, Doelenstraat, Amsterdam, or to me. Full information is always obtainable from the central office, Keizersgracht 489, Amsterdam.—I am, etc.,

R. FORTESCUE FOX.

36, Devonshire Place, W.1, June 8th.

PSEUDO-ARGYLL ROBERTSON PUPILS WITH ABSENT TENDON REFLEXES

SIR,—The avowed object of my paper under this title was to make it known that pupils conforming to the prevailing loose definition of the Argyll Robertson sign may be associated with absence of the tendon jerks in patients free from syphilis ; and that the distinction from syphilis may be made with certainty by observing the behaviour of the pupils during the act of accommodation.

The wording of Dr. Parkes Weber's letter in your issue of June 6th (p. 1001) might be taken to mean that this twofold message was not a new contribution to our knowledge. He writes that " no allusion is made to the first account of such cases published in England—namely, that by Dr. C. Markus." This author did not give " an account of such cases " ; he described an isolated case in a paper on " A peculiar pupil phenomenon in cases of partial iridoplegia." In this case, with a myotonic pupil and absent knee- and ankle-jerks, and in almost all the others that have been described—I have found about a dozen isolated examples in ophthalmological journals—a diagnosis of syphilis of the nervous system was either made outright or seriously entertained. It is interesting to recall that Dr. Markus, while admitting that the signs in his case were suggestive of congenital syphilis, was " inclined to take a less serious view." To-day we do not incline to a certain view when confronted with these signs ; we know that they have no relation to syphilis.

Dr. Parkes Weber asks if I mean to separate cases with myotonic pupils alone from those with myotonic pupils and absent tendon jerks. I said in my paper that it was *more than probable that some of the cases* with abnormal pupils only were examples of a milder form of the same disorder as that in which the tendon jerks were also abnormal. I would now amplify this by substituting the words *certain that most of the cases,* for those in italics above.

A study of the published cases has caused me to form the opinion that the group with myotonic pupils alone is almost, but not quite, homogeneous etiologically ; the group I have described with myotonic pupils and absent tendon jerks is certainly homogeneous, and constitutes a harmless disorder *sui generis* of unknown origin.—I am, etc.,

London, W., June 6th. W. J. ADIE.

EUROPEAN WOMEN AND CHILDREN IN THE TROPICS

SIR,—In the *Journal* of February 14th you report an interesting discussion on the above subject which took place at a meeting of the Royal Society of Medicine. The subject is of great interest to us out in the East, and one on which an interchange of views is always helpful.

I myself have practised nine years in the Tropics, but my professional experience has been limited to the lowlands of Siam. Here, however, we have a climate which is a severe test to all, and conditions of life which are difficult to many. The temperature rarely exceeds 100° in the shade, but it is a damp heat, and continues throughout the year, the cool season, so called, being often of very short duration and never really cold. Life is monotonous, as geographically we are in a backwater, and we feel rather " out of the world " as compared with big shipping centres, like Singapore and Hong-Kong. Home conditions are as good as one can expect, owing to excellent electric light and fan service, good water supply, good cold storage, and fairly good housing accommodation—all, also, at a very good expensive price. But a house in the East is never the same as an English home, and Chinese servants, excellent for undiscriminating bachelors, can drive a conscientious housewife to the verge of a nervous breakdown.

Adaptability, an equable temperament, moderation, and a determination to get the best out of life, are four great assets for life in the East, and unfortunately few women possess them all. Life is admittedly more difficult for them, as they have not sufficient to do or think about ; and so the small things of life—the bites of mosquitos, the plague of flying animals of every description that come with the rain, the feeling of discomfort in wet clothes, the petty thefts of the cook, the effort of explaining to servants who understand little English and whose language is not easy to master—all these things thrust themselves on the conscious mind, out of all proportion to their importance. Many seek relief from domestic troubles by virtually giving up home life ; they try to avoid monotony by over-indulgence in games, bridge, dinner parties, with their train of late nights, excitement, and excessive alcohol. These women are hardly ever in their homes, and seem to have an obsession to be always out and about doing things, trying to forget, and trying to make the time pass till the next leave comes, or nervous exhaustion drives them home. Others may go to the other extreme, give up their games, shun all social engagements and responsibilities, and become " housebound." These, if they have not the absorbing interest of a hobby, or an outlet for their emotions in the care of a baby, soon get depressed and neurasthenic.

The woman who does best here is the woman who takes a real interest in her house and garden, her baby—and she should have one, if she can—and last, but not least, her husband. She should be able to combine these interests with a modicum of healthy exercise and entertaining, and she should, above all, be able to preserve her sense of humour and of the relative proportion of things that matter. She will find a working knowledge of the language of the country a great help, and, if she can develop an interest in a hobby, or some social work, such as the organization of the local library or musical society, etc., she will find the time pass more happily.

Babies are a godsend to many a woman in the East, and should be encouraged. They do very well up to about 2 years, keep fairly well up to 6 years, but should go home not later than that age. Mentally they develop rapidly, but they become nervous, anaemic, and debilitated if kept out longer. European nurses are a gamble ; they may be excellent, but in a small station, where there may be few of their own class, they are apt to get lonely and discontented ; and in a house staffed entirely by Eastern servants they occupy a difficult position in the home. Many Chinese amahs are excellent. They should be carefully examined medically, of course, and, like all Eastern servants, require constant supervision.

I must express surprise at Dr. Aldo Castellani's statement that very few European women in the Tropics could nurse their babies for more than a few weeks. On analysis of my cases I find that approximately 90 per cent. have fed their babies for five months, and a number have done it longer. Natural feeding is still the best form of nourishment, particularly in the Tropics, where fresh, clean cow's milk is almost unobtainable, and

it can be done ; only the mother has to concentrate on it. She has to settle down to a placid existence for the few extra months, she has to go to bed early, give up her games, and take extra nourishment. It is hard, after the weary months of pregnancy, and it is not conducive to a quick return to the prematernity figure, but most mothers realize that it is worth it.

I must apologize for bringing up this discussion some months after it has appeared in your columns, but that is partly because of the necessary delay in the post.—I am, etc.,

Bangkok, Siam, April 15th. H. W. TOMS.

OPERATION FOR CATARACT

SIR,—The letter by Dr. H. M. Traquair, in your issue of June 6th, is important from a practical point of view. There is no doubt that his experience of dissatisfied patients after operation for removal of monocular cataract is that of most ophthalmic surgeons. Further, I agree that where the operation is done at all, one is usually persuaded to do it by the patient, even though the uncomfortable post-operative condition has been carefully explained beforehand. The two chief arguments in favour of removal of monocular cataract are, where the other eye possesses good vision, improvement in the visual field, and improvement in the appearance of the pupil. While the former is certainly an advantage in these days of fast-moving traffic, the latter appeals particularly to the female sex, where the milky appearance of the pupil is a source of inquiry and annoyance to the patient. I have found this type of patient much more appreciative than any other, after operation, especially where an iridectomy has not been done at all, or, if done, is of the small peripheral type. Dr. Traquair's experience that patients can shoot pheasants after operation as well as before the development of cataract is as it should be. The resulting improvement in the visual field after operation is all-important in game shooting. The act of game shooting is a beautifully co-ordinated movement of the whole body, and, even when the vision is only fair, can be carried out satisfactorily provided that the correct movements of stance, swing, and anticipation are employed. Most first-class game shots shoot with both eyes open, in contrast with rifle shooting. Again, the loss of accommodation after the removal of the lens is no handicap to game shooting.—I am, etc.,

Blackpool, June 13th. W. BARRIE BROWNLIE.

TREATMENT OF DYSMENORRHOEA

SIR,—I have read with much interest Mr. Venn Dunn's paper on the treatment of dysmenorrhoea in your issue of June 6th, and it is a most remarkable fact that, in a communication professing to give advice on the most effective methods of alleviating, and, if possible, curing this most painful concomitant of a normal process, no mention is made of the benefits of diathermy applied from front to back through the pelvis.

It is so frequently young unmarried girls who are the sufferers from dysmenorrhoea. Such patients may be questioned and examined per rectum, but a routine per vaginam examination is out of the question in general practice, and more often than not the result of such examination as can be made is negative. What is to be done?

We may classify such patients into the psychological or endocrine type. But are we much further on? It is not every medical man who has the time or the personality to practise psychotherapy—the successful administration of which is only given to a small proportion of busy practitioners ; and, as means of treatment, it is little more certain than endocrine therapy, which, at present, is in a state of nebulous chaos.

More than thirty years ago Dr. Betton Massey of Philadelphia advocated treating dysmenorrhoea by through-and-through galvanism—this was long before diathermy was discovered—and I have used this older method with success. Anyone *au courant* with modern therapeutics as practised on the Continent and in America would certainly give diathermy pride of place in the treatment of dysmenorrhoea of doubtful origin. When this remedy fails, then, and not till then, is it necessary to submit virgins to vaginal examination. In the case of those who are not virgins the position is different ; but even here, when no definite cause can be found, diathermy will usually effect a cure ; and, where diathermy is not available, galvanism is a very good second.

It is common knowledge that the action of diathermy is to cause a dilatation of the blood vessels, and so it increases the blood supply and also, in a less understood manner, it regulates neuro-muscular function. Are not these two qualities exactly what is wanted in the treatment of simple dysmenorrhoea ; and, if treatment is to be administered, is not success more likely to be obtained by these methods than by a reliance on analgesics and the advertised claims of makers of so-called endocrine preparations, or by submitting the patient to dilatation " which may have to be repeated in three months' time " or other surgical procedure which may or may not be successful?

The lamentable want of knowledge of the field of usefulness of electrotherapy is daily brought home to those of us who practise this most useful specialty, and one is forced to conclude that the lack of appreciation of its efficacy in certain conditions must be traditional in this country.—I am, etc.,

Cheltenham, June 9th. J. CURTIS WEBB.

KERATODERMIA BLENNORRHAGICA

SIR,—The above diagnosis in the case described under this title in the *British Medical Journal* of June 6th (p. 979) does not appear to have been established, either on clinical or bacteriological grounds, and would seem to be unwarranted, as there was no history of gonorrhoea nor was any evidence of this disease discovered. The diagnosis was apparently made because a keratotic eruption cleared up after treatment, among other remedies, by a gonococcal vaccine.

Barrett (*Arch. Derm. and Syph.*, 1930, xxii, 627) has stated that in order to establish a diagnosis of keratodermia blennorrhagica three things are essential—namely, (1) a gonorrhoeal infection of the uro-genital tract ; (2) a keratotic eruption ; and (3) a gonorrhoeal arthritis. Of eight cases recently published six conformed to these requirements (as did two cases which I have had the opportunity of observing), while of the other two, one described by Louste and Lévy Franckel (*Bull. Soc. Franç. de Derm. et de Syph.*, 1930, xxxvii, 378) was a rare case in a child, 5 years of age, with gonorrhoeal vulvitis but no arthritis, and the other had a history suggestive of recent gonorrhoeal epididymitis but no active lesions ; this case, however, was complicated, as the patient also had a syphilitic infection.

Adamson (*Brit. Journ. Derm. and Syph.*, 1920, xxxii, 183) has pointed out that there is a striking similarity sometimes between arthropathic psoriasis and keratodermia blennorrhagica.

In view of the findings in this case it would seem more probable that the condition was associated with the abundant streptococcal infection proved to be present, rather than with a hypothetical infection with the gonococcus which could not be demonstrated.—I am, etc.,

NORMAN BURGESS,
Clifton, Bristol, June 9th. M.A., M.D.Camb., M.R.C.P.

GONOCOCCAL RHINITIS

SIR,—It is very gratifying to note the interest evoked by the article by Dr. Kirkland and myself on gonococcal rhinitis in an infant, published in the *Journal* of February 14th. The case was reported, not for scientific record, but to provoke discussion on a very important but much neglected subject. Admittedly the diagnosis was not complete, because no culture was made and the gonococcal complement-fixation reaction of the baby's serum was not determined. Nevertheless, my thesis is that typical gonococci cannot be mistaken by one experienced in recognizing these organisms.

I agree with Dr. A. Scott, who points out in the *Journal* of March 28th that it is very difficult to culture the gonococcus in the presence of other hardier organisms. I should like to hear from Dr. Assinder his method of culturing the gonococcus in mixed infections, and how he identifies them by fermentation tests in the possible presence of *Micrococcus catarrhalis*. Quite often have I been able to identify the gonococcus in a smear of prostatic fluid stained by methylene blue, yet have not been able to identify them in culture owing to the medium being overgrown by staphylococci and diphtheroids. Media rich in trephones, such as Hirschfeld's testicular and Pelouse's calf-brain agar, have all been tried, but without much success. I contend that in a case of mixed infection the identification of an organism from the nose by fermentation tests (as suggested by Dr. Assinder in the *Journal* of February 28th) is not practicable. I should be glad to know of any medium which would inhibit the growth of other organisms and yet promote the growth of the gonococcus. I suggest that such a medium is urgently required, and research devoted to its isolation should be encouraged in every way possible.

The complement-fixation reaction of the baby's serum should have been determined, but it is probable that, as is the case in other early acute gonococcal infections, it would have been negative.

Dr. Orpwood Price raises a very important controversial point. In the absence of positive blood reaction and the isolation of the gonococcus by culture, is it justifiable to regard a chronic non-symptomatic prostatitis in the male adult as gonococcal infection merely because the prostatic fluid contains pus? Where there's smoke there's fire! I maintain, therefore, that where there is a history of antecedent gonorrhoea it is safer to treat the patient as suffering from an uncured gonococcal focus than to assure him that he has "nothing to worry about" as is so commonly done, with tragic sequelae. The "certain" diagnosis of chronic latent gonorrhoea presents very great difficulties, especially in married persons where the symptoms are slight or even absent. "Gonococcosis d'emblée" is, in my opinion, far commoner than suspected.

In conclusion, I suggest that when there is naked-eye or microscopical evidence of gonococcal infection, medical men should be extremely cautious of pronouncing a patient cured merely because the cultural and serological results are negative. Recently, at the instigation of the author, a Laboratory of Neisserian Research has been established in Sydney, the main object of which is to secure a higher standard of cure in gonorrhoea than has been demanded by the medical profession in the past. In view of the extreme prevalence of latent gonorrhoea (10 per cent. of the adult population) it is lamentable to observe the apathy of the medical profession towards this tremendously important problem. Especially is this so in Australia. Here there are no lectureships in venereology at any of the universities; there are no opportunities for post-graduate work in the modern diagnosis and treatment of gonorrhoea and syphilis; and there is no section of the British Medical Association for the study of venereal diseases.—I am, etc.,

Sydney, New South Wales, May 7th. ROBERT V. STORER.

FRACTURE OF THE NECK OF THE FEMUR

SIR,—In recent numbers of the *Journal* attention has been drawn to the important question of fractures of the neck of the femur. As regards treatment, I must confess that I have never had any success with the Whitman type of plaster-of-Paris spica, nor can I fully concur in its underlying principles. To my mind the essentials in treatment are extension with abduction; then, correction of the excessive external rotation of the foot. These can surely be best obtained by skeletal traction in such a splint as the Thomas knee splint. With faithful attention to detail there is absolutely no reason why full and adequate reduction should not be secured; and if it is maintained and the patient is transferred to a walking calliper splint after some weeks, a good result will be obtained, but not under three years in the case of the "intracapsular" variety. In the near future a book will be published by Constable and Co. which will contain the details of the methods I advocate. I should be only too pleased to let any reader know particulars earlier, if he so requires.—I am, etc.,

London, W., June 9th. MEURICE SINCLAIR, Major R.A.M.C. (ret.).

TREATMENT OF TABOPARESIS BY HYPERPYREXIA INDUCED BY HOT BATHS

SIR,—The article by Drs. Gibson and Gordon in the *Journal* of June 13th would appear to be worthy of special notice for the clarity of its presentation, its freedom from irrelevant matter, and more especially for directing attention to the therapeutic possibilities of hot water. It is somewhat strange that a method of treatment which demands no special apparatus beyond that contained in the average household should not be more generally resorted to. Although the induction of hyperpyrexia by hot bathing is a well-known hydrological measure, most of the literature dealing with such a procedure is contained in publications devoted to the study of the subject. References in general medical literature are comparatively few. The employment of water in its different forms and in various circumstances, both internally and externally, as a therapeutic agent, although recognized for centuries, has to some extent been regarded by the rank and file of the profession as a more or less specialized kind of treatment, and not to be naturally included in the resources of the ordinary practitioner. The reason is not far to seek.

The teaching of medical hydrology forms a very small part of the curriculum of the medical student. Prejudices die hard, and the teachers of to-day no doubt retain subconscious memories of the scant courtesy with which the "water doctors" of their day were treated. This was doubtless due to the fact that in those times practitioners of medicine ranged themselves under distinctive banners indicative of their individual school of thought and teaching. In the days when the value of a prescription was assessed by the number of its ingredients, it is not to be wondered at that the employment of water alone was not seriously considered.

Happily all this is changed, and although adequate provision for the teaching of medical hydrology is largely wanting, the profession as a whole is beginning to realize its importance. Not only are teaching facilities at present utterly inadequate, but the opportunities for research are greatly lacking. It would be ungenerous not to mention the pioneer work that has been done by Dr. Fortescue Fox in his constant efforts to obtain better facilities for the study and teaching of hydrological methods of treatment.

The study of medical hydrology is intimately bound up with the study of climatology. The two subjects go hand in hand, and while the first is neglected the second is to all intents and purposes ignored. In spite of this

a day rarely passes in the life of the ordinary practitioner when he does not have to answer some question as to the suitability of this or that locality for one or other of his patients.

I venture to suggest that the time is now ripe for the appointment of a Reader in Hydrology and Climatology at each of our medical schools. I would also suggest that the matter be taken up by the British Medical Association. It will no doubt be urged that the medical curriculum is already overloaded, and that medical students will take no interest in subjects they are not likely to be examined upon. The first objection could be met by dropping some less essential subject or part of a subject, and the second by setting an occasional question in either hydrology or climatology at the final examination. If this were done, the Reader would have no cause for complaint with regard to the paucity in the number of those attending his lectures.—I am, etc.,

London, W.1, June 15th. M. B. RAY.

MINOR SURGERY OF INFANCY

SIR,—Mr. David Levi, in his description of the operation for umbilical hernia in infants, by subcutaneous ligature, in the *Journal* of June 6th, is apparently ignorant of the practice of Mr. John Fraser, whom I saw perform this operation in 1922 in Edinburgh. That the operation has not found general favour is due to the obvious danger of including in the ligature the tail of omentum that frequently lies in these herniae, and to the fact that most of them disappear spontaneously, whether treated by strapping and halfpennies or not.

Mr. Levi, in recommending the injection of closed hydroceles of infants with sodium morrhuate to effect aseptic inflammation and cure, says: "It is not unreasonable to suppose that the inflammation might spread to the closely adjacent vas deferens and produce stenosis or stricture of it. It has therefore been my practice never to inject both hydroceles in bilateral examples of this condition." Surely to risk producing stricture of one vas deferens is a surgical error, when the simple alternative of masterly inactivity will cure the great majority of infant hydroceles. The minority would be better treated by open operation, which would not jeopardize neighbouring important structures.—I am, etc.,

London, W.1, June 8th. JAMES CROOKS.

"STREPTOCOCCI IN SCARLET FEVER": A TROPICAL VIEW-POINT

SIR,—Your review in the *Journal* dated May 30th of the sixth volume of the *Annals of the Pickett-Thomson Research Laboratory*, on "The Role of the Streptococci in Scarlet Fever," states that "the authors consider that the chief mode of spread [of scarlet fever] is by droplet infection from the respiratory tract." This, in the opinion of many, is the chief mode of infection, not only of scarlet fever, but of other diseases, such as diphtheria and rheumatic fever—except in so far as infection may take place through contaminated articles. This makes the human being the only origin and almost the only reservoir of this disease, and suggests that every new case must arise from a previous clinical case or from a carrier. It is a possible, but not an entirely, satisfactory explanation, as so much seems to depend on environmental conditions.

Something might be learned of the cause both of scarlet fever and of rheumatic fever from a study of the geographical distribution of these diseases. It may be said that neither of them occur in the Tropics. Occasional cases of scarlet fever are said to be imported into those latitudes, but the disease does not spread, and occasional cases of rheumatic fever apparently occur in the Tropics, but the cases are so rare as usually to throw doubt on the diagnosis.

Dr. William Fletcher[1] says that "in the Dutch East Indies, where scarlet fever does not occur, the bulk of the children give positive Dick reactions. With increasing age the number of negatives becomes equal to that found in countries where scarlet fever is endemic. Thus an immunity is obtained in spite of the absence of scarlet fever." This illustrates the fact that "an infection may be widespread in a population with but few, if any, cases of the disease showing themselves." There is something in the Tropics which leads to a Dick-negative reaction in the population, but something also is present, or may be absent, which prevents scarlet fever from showing itself in its normal form, and this leads to the supposition that there are two factors necessary for the production of the disease.

Dr. Coburn[2] writes that the number of haemolytic streptococci found in the throats of rheumatic fever cases in New York diminishes very greatly when these cases are removed to Porto Rico, which is 5 degrees inside the Tropics; that is to say, we have the contradictory position that the streptococci of the one disease, rheumatic fever, tends to disappear in the Tropics, whereas the, apparently, similar organism of scarlet fever must, on the evidence of the Dick test, be endemic in the (tropical) Dutch East Indies, where scarlet fever does not occur. Neither of these diseases is found in the Tropics except very, very occasionally.

Coburn suggests that in New York there is an environmental condition favourable to the growth of the streptococcus of rheumatic fever which is absent or almost so in Porto Rico. This apparently should also apply to the streptococcus of scarlet fever; there can hardly be a climate condition which prevents a bacillus of rheumatic fever from thriving in the throat in the Tropics, though it can thrive in the same throat in New York. It would seem, rather, that in the absence of frequent reinfections the patient can clear himself of an organism, as in Porto Rico, but that when an environment such as there is in New York keeps up a more constant supply, the organism cannot be thrown off.

Seeing that in the big "public" schools, where throat infections account for about 80 per cent. of the total invalidity, there is hardly any rheumatic fever, and that Dr. Stalybrass says that school infection is not of importance in scarlet fever, it seems probable that the environmental condition in question is one of bad sanitation rather than of the propinquity of infected throats. Dr. Coburn suggests that the bacterial agent is not the only factor responsible for the rheumatic state. The same may apply to scarlet fever. In some ways scarlet fever and rheumatic fever behave similarly with regard to the Tropics, and it appears that if there are two factors responsible for the rheumatic state the same may be true of scarlet fever.—I am, etc.,

J. TERTIUS CLARKE,
Late Medical Officer and Health Officer, Perak, F.M.S.

Harrow, June 8th.

PREVENTION OF RENAL COMPLICATIONS IN SCARLET FEVER

SIR,—In reference to Dr. Samson's letter in your issue of June 6th, we have devised a method for prevention of renal complications after scarlet fever in the last 600 cases admitted to this hospital, which is giving even better results. We administer alkalis (sodii bicarb., 25 grains, pot. bicarb., 5 grains, four-hourly) until the urine is alkaline to litmus. This takes three to four days. This brief administration of alkalis has no effect on the renal complication rate, but it reduces the alkali reserve to normal, and thereafter no test we have applied shows that there is any reduced reserve throughout the attack.

[1] *British Medical Journal*, 1928, i, 448.
[2] *The Factor of Infection in the Rheumatic State.*

The success of Dr. Samson's method is evidently not due to abolition of "acidosis." It has been shown that dogs which have received a lethal dose of $HgCl_2$ can be saved from death by administering to them large doses of salts. This is apparently due to the excess of salt turning out the + -charged Hg ion from its combination with the body proteins. I have suggested elsewhere[1] that true toxins behave like polyvalent + -charged metallic ions causing colloid flocculation in the blood and tissues, and that a good part of the pathology of the toxins is possibly explicable on that theory. The success of Dr. Samson's method is confirmatory of this.

Acting on this theory we are now giving tr. iodi mit., 20 minims in milk four-hourly, and thyroid, 4 grains, once per day for a fortnight after admission (in addition to the short alkaline treatment), as suggested by McDonagh's work. Gortner has shown that iodine as KI is the most potent agent in peptizing the colloids of wheat flour—a very suggestive experiment in this connexion. In our last 600 cases of scarlet fever, four cases have had a trace of albumin for four days only, and three had nephritis in the fourth week, which all cleared up completely in three weeks on repeating the thyroid and iodine until the urine was clear of albumin, and alkalis until the urine was alkaline again. This gives a percentage of just over 1 (one-third of Dr. Samson's rate with alkalis only), compared with a control group of 1,080 cases which showed a percentage of 10.7 with renal complications (a figure almost identical with Dr. Samson's control group of 11 per cent.).

It would be interesting to try this method on a case of acute nephritis, as the three cases treated in this way cleared up in half the usual time, which is usually about six weeks in scarlatinal nephritis.—I am, etc.,

Ham Green Hospital and Sanatorium, Pill, near Bristol, June 8th. B. A. PETERS, M.D.

AVERTIN ANAESTHESIA

SIR,—The report of the meeting of the Pharmacological Section of the Royal Society of Medicine in your issue of June 13th gives a rather misleading impression of what I said. My remarks were not confined to the mention of a successful administration of avertin for the performance of cholecystectomy in a case of congenital cystic liver. I stated that I had given this drug in 435 cases, many of the patients being young children and old people, and twelve of the operations being for removal of the gall-bladder. In no instance had ill effects been observed, and I was satisfied that in avertin the anaesthetist has a drug of immense value. I was not convinced by the experimental evidence brought forward by Dr. Parsons as the result of an investigation on five rabbits. Dr. Parsons himself, as your report states, admitted that the evidence was inconclusive, and as he proposes to repeat the experiments upon dogs his attention might be directed to the recent work of Bolliger and Maddox (*Current Researches in Anaesthesia and Analgesia*, 1931, x), which confirms the work of Wesley Bourne, Bruger, and Dreyer. Bolliger and Maddox state that "normal dogs, after repeated and potent doses of avertin, yielded no evidence of recent acute hepatic damage, as is easily obtained by chloroform anaesthesia."

It is difficult to agree with Sir William Willcox that avertin should be used with great caution. Provided it is given in accordance with the principles and instructions which have been clearly laid down, it can be used with complete safety. His remark that it is not a substance which should be let loose on the medical profession would apply with more justification to chloroform.—I am, etc.,

London, N.W.1, June 15th. FRANCIS E. SHIPWAY.

[1] *Medical Officer*, January 24th, 1931.

CONVULSIONS DURING GENERAL ANAESTHESIA

SIR,—Whatever may be the cause of convulsions during surgical anaesthesia it is not, as your correspondent suggests, "lightness of anaesthesia." If he will investigate the reported instances of ether convulsions he will find that in almost every one it is either expressly stated that the patient was deeply under, or else it is plain that this was so from the context. In fact, if one were asked to select one common factor in attempting to define the causation of this very puzzling phenomenon, one would, I think, state that deep narcosis was the condition most often present.—I am, etc.,

London, W.1, June 11th. J. BLOMFIELD.

SIR,—I agree with Dr. W. S. Laurie (June 6th, p. 1002) that it is certainly possible for an attack of epileptic spasms to appear during anaesthesia. I have twice witnessed their onset, though they passed off during the surgical stage and were only faintly observable during recovery. Apart from the event of slight clonic movements in the presence of slight degrees of anoxaemia, there is also a very common appearance of clonic muscular movements at the moment of the application of dental forceps in children under the influence of gas and oxygen, so that reflex effects must be ruled out in making a diagnosis of true epilepsy.—I am, etc.,

London, N.W.1, June 10th. BELLAMY GARDNER.

AFRICAN TICK FEVER

SIR,—I have just received vol. viii of the *System of Bacteriology*, which is in process of being issued by the Medical Research Council, and would like to congratulate the editors and everyone concerned on the excellence of the work. Nevertheless, in an authoritative work of this kind it is desirable that the facts stated should be accurate, and that as far as possible justice should be done to the various observers who have worked at any given disease. One is reminded of the controversy which took place about twenty-seven years ago as to the relative parts played by Castellani, Bruce, and myself in the elucidation of the causation and the mode of transmission of sleeping sickness. I have no desire to revive this controversy, but should like to point out that in August, 1903, when examining the blood of a suspected sleeping sickness patient, I discovered the spirochaetes of relapsing fever on several occasions in the patient's blood. I showed the films to Colonel (now Sir David) Bruce, and his comment was that they probably came from the distilled water which had been used in staining the blood film, and that they were not in the patient's blood. I pointed out to him, however, that I had stained twenty or more films from other human beings and animals that same day, and this was the only one which showed the spirochaetes. The case is fairly fully described in Part V of the reports of the Sleeping Sickness Commission, which was dated Entebbe, November 20th, 1903. This report, for some unknown reason, was withheld from publication until July, 1905, by which time Drs. Cook and Ross and Milne, all of Uganda, had rediscovered this spirochaete and obtained the credit for the discovery. In the history of African relapsing fever on page 169 of vol. viii of the *System of Bacteriology* no mention is made of my original discovery in 1903, though this fact is mentioned by Castellani and Chalmers in their *Manual of Tropical Medicine*, the first edition of which was published in 1910. As Dr. Hindle, the writer of the article in question, refers to Castellani and Chalmer's manual, I am surprised that he did not include this reference to my original observation in his historical account of African tick fever.—I am, etc.,

London, W.1, June 10th. DAVID NABARRO.

Obituary

SIR ROBERT H. FIRTH, K.B.E., C.B., F.R.C.S.

Colonel A.M.S. (Ret.)

As announced in our last issue Colonel Sir Robert Hammill Firth, K.B.E., C.B., late R.A.M.C., died in London on June 5th, aged 72. He was born in Byculla, Bombay, on December 1st, 1858, was educated at Oxford and at University College, London, and qualified as M.R.C.S. in 1879. He obtained the F.R.C.S.Eng. in 1882, and later the D.P.H. of the English Colleges in 1891.

Entering the Army as surgeon on August 4th, 1883, he attained the rank of colonel on November 13th, 1912, and retired on December 25th, 1917, when holding the post of Deputy Director of Medical Services. He served in the Tirah campaign on the North-West Frontier of India in 1897-98, receiving the medal with two clasps, and throughout the war of 1914-18, when he was twice mentioned in dispatches—in the *London Gazette* of January 1st, 1916, and on December 24th, 1917. He was assistant professor of hygiene at the Army Medical School, Netley, from 1892 to 1897, and professor of military hygiene at Netley, and later at the Royal Army College at Millbank, after the school was transferred from Netley, from 1900 to 1906. During the four years from February, 1906, to February, 1910, he was in charge of the School of Army Sanitation at Aldershot.

He collaborated with the late Colonel Notter in the production of Notter's *Theory and Practice of Hygiene*, and largely rewrote the material ten years afterwards. As he explained in his preface, "Notter and Firth" was, strictly speaking, the third edition of the book which Colonel Notter and he brought out in 1896, based upon the well-known work of Dr. Edmund A. Parkes, and the extent of the changes made in the text were such as to render the edition of 1908 practically a new work. The ninth edition appeared in 1921. Colonel Firth was also author of other books on the same subject—*Hygiene and Practical Domestic Hygiene*, and a manual of sanitation for soldiers entitled *Military Hygiene*—and in 1919 he published *Musings of an Idle Man*.

He gained the Alexander Memorial prize and medal in 1888, and again in 1891; and the Parkes Memorial prize and medal in 1889, and again in 1892. He received the C.B. in 1918, and the K.B.E. on June 2nd, 1919. He was for many years a member of council and examiner at the Royal Sanitary Institute, a member of council of the Royal Institute of Public Health, and a Fellow of the Society of Medical Officers of Health. He was also a member of the Société de Médecine Militaire Française. At the Annual Meeting of the British Medical Association at Swansea in 1903 he held office as vice-president of the Section of State Medicine. In 1884 he married Mary, daughter of William Knight of Appledore, Devon, and leaves a daughter.

Mr. ANTHONY BLACKSTOCK, F.R.C.S., orthopaedic surgeon to the Royal Hospital, Wolverhampton, and to the Guest Hospital, Dudley, who died suddenly on June 2nd, was very well known in the district in which he practised. His untimely death came as a great shock to the neighbourhood, as he had been at his usual work in the morning. Mr. Blackstock obtained the M.R.C.S., L.R.C.P. diplomas in 1917, and became M.B., B.S. in 1923, and F.R.C.S. in 1924. For some time he was surgical registrar and out-patient surgical officer to King's College Hospital. He was also a Fellow of the Royal Society of Medicine. Of a quiet and unassuming disposition, he thought and read deeply in science and philosophy, applying his knowledge to his profession with great success. He was especially noted for his kindness to the poor of the hospitals at which he worked. He leaves a widow and three children.

Dr. EVAN J. GRIFFITHS, who died at Porthcawl on June 5th, aged 58, was a native of the Swansea district. He received his medical education at the University of Edinburgh, where he graduated M.B., Ch.B. in 1904; he obtained the D.P.H. Wales in 1910. After graduating he became assistant to Dr. Jones of Penrhiwceiber, and was subsequently appointed medical officer of health for Pontypridd, which office he retained for eighteen years, retiring to Porthcawl some four years ago. During the war Dr. Griffiths served in East Africa, and also accompanied an expedition to North Russia. He leaves a widow and two children. The funeral at Glyn Taff Cemetery was attended by a large and representative gathering.

Dr. J. HAYDN TIMOTHY died on May 27th, after only three days' illness, at the age of 53. Educated at Llandovery College, Cardiff Medical School, and University College Hospital, London, he obtained the diplomas of M.R.C.S. and L.R.C.P. in 1903. After a period as resident medical officer at Fulham Infirmary, he took up practice at Nantgaredig, Carmarthenshire, where he remained until 1919, when he removed to Gwaun-cae-Gurwen, Glamorgan. He was a member of the British Medical Association, and had served on the Glamorgan Panel Committee for many years. Dr. Timothy's genial disposition assured him a large circle of friends among patients and colleagues in the area. He was buried at Nantgaredig on May 29th, and the large gathering at the funeral, both at Gwaun-cae-Gurwen and at Nantgaredig, testified to the esteem felt for him in both areas in which he had practised. He leaves a widow, one son, and two daughters.

Dr. WILLIAM LLEWELYN JONES, J.P., died at Merthyr on May 20th at the age of 58. He studied medicine at Glasgow University, where he graduated M.B., C.M. in 1893, and M.D. in 1900; he obtained the F.R.C.S.Ed. in 1901. After spending about twelve months in the East as a ship surgeon in a P. and O. boat, he went into practice with his eldest brother at Blaenavon. He finally settled down in practice in Merthyr, where he was surgeon to the Merthyr General Hospital. He had not been in good health since the death of his wife, about six years ago, and of his son, aged 9, who died some time later. He is survived by two daughters.

Universities and Colleges

UNIVERSITY OF OXFORD

Sir Wilmot Herringham, K.C.M.G., D.M., consulting physician to St. Bartholomew's Hospital, has been elected an honorary Fellow of Keble College.

UNIVERSITY OF CAMBRIDGE

At a congregation held on June 12th the following medical degrees were conferred:

M.D.—*S. M. Hattersley, *S. R. Prall.
M.B., B.CHIR.—G. L. Ormerod, N. H. L. Ridley.
M.B.—C. Arthur.
B.CHIR.—A. Barnsley.

*By proxy.

UNIVERSITY OF LONDON

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The next series of eight lectures and demonstrations on tropical hygiene, which are intended for men and women outside the medical profession proceeding to the tropics, will be given by Lieut.-Colonel G. E. F. Stammers from July 6th to 10th next. These courses of instruction, in addition to providing simple rules for guidance in regard to preparation for life in the Tropics and personal hygiene, will also embrace a short account of some of the more common diseases, with advice in regard to measures of protection and some guidance in simple methods of self-treatment. The synopsis and other particulars can be obtained from the secretary, London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1.

VICTORIA UNIVERSITY OF MANCHESTER

Dr. Stephen Leonard Baker has been appointed Procter Professor of Pathology and Pathological Anatomy, in succession to Professor J. Shaw Dunn; he will take up his new duties on September 29th.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examinations indicated:

M.D.—S. Datta.

FINAL M.B., CH.B.—*(Part I)*: H. M. F. Finzel (with distinction in Materia Medica, Pharmacy, Pharmacology and Therapeutics, and Forensic Medicine and Toxicology), J. J. Kempton, R. L. Marks. *(Part II)*: Elizabeth S. G. Owen (second-class honours), L. P. Ashton (distinction in Surgery and Obstetrics), J. E. Brown, L. R. Jordan (distinction in Medicine), R. H. Moore. *Group II (Completing Examination)*: Evelyn M. D. M. Collinson, Rowena M. Hickman. *Group I only*: W. A. F. Taylor. *Group II only*: O. J. P. Bollon.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on June 11th, when the President, Lord Moynihan, was in the chair.

Presentation of Gold Medal

Mr. G. Buckston Browne was introduced, and the President presented him with the Honorary Gold Medal of the College, together with a document declaratory of its award to him, in recognition of his valuable contributions to surgery and of his great liberality in the endowment of an Institution for Surgical Research.

The late Sir Herbert Waterhouse

The secretary reported the death, on May 23rd, of Sir Herbert Furnivall Waterhouse, past member of the Council and of the Court of Examiners. A resolution of condolence was passed by the Council.

Fellowship

Diplomas of Fellowship were granted to the following forty-five candidates:

S. Riddiough, Edith M. Hall, R. G. Maliphant, J. Gabe, V. M. Albuquerque, G. N. Golden, A. W. Kendall, R. A. King, B. M. Sundaravadanan, A. J. W. Chamings, M. Coleman, T. R. Stevens, A. J. Watson, W. J. Wilkin, S. M. Cohen, J. M. Gibson, Beatrice M. Willmott, A. R. Eanham, R. K. Bowes, G. Herbert, M. A. E. Anous, S. Ahmad, B. C. Rennie, C. B. Melville, Joyce R. Woods, B. Willis, A. H. Lendon, J. A. R. O'Regan, M. Backwell, G. H. Brandis, K. B. Bridge, H. A. Brittain, E. L. Button, I. A. Hamilton, H. D. Isaacs, J. Kelly, M. L. Kennedy, A. L. Kerr, S. N. Lytle, G. A. Mason, J. H. O'Donnell, C. M. Smithies, G. G. Talbot, T. Thornton, W. K. Welsh.

Primary Fellowship Examination

The following fifty-six candidates, out of 169 entries, were approved at the recent Primary Examination for the Fellowship:

F. W. Allinson, S. O. Aylett, J. E. M. Ayoub, P. S. Bassalvi, Diana J. K. Beck, D. L. C. Bingham, E. W. Bintcliffe, Edith J. R. Browne, K. L. Buxton, W. G. Campbell, S. G. Clayton, Gladys E. Clyne, E. A. Danino, G. B. Davis, Rosalind M. S. Derham, K. C. Eden, G. C. Ferguson, W. J. L. Francis, P. E. Glynn, W. H. Graham, T. F. R. Griffin, J. O. Harrison, H. E. James, E. C. Janes, E. J. Javeri, J. H. Kellgren, H. Kelson, C. A. Keogh, B. Kettle, S. Krantz, A. F. Lasrado, N. J. Logie, C. J. Lord, D. McMillan, C. P. Malley, J. A. Martinez, W. Merrington, S. N. Mistri, G. A. G. Mitchell, A. J. Moffett, K. G. Munsif, F. D. Murphy, R. P. Osborne, B. H. Page, C. G. Patel, E. E. Price, R. S. Richmond, N. W. Roberts, G. S. Robinson, M. D. Sheppard, M. A. H. Siddiqi, C. B. Singh, U. P. Sinha, E. C. N. Strong, W. D. Walker, Maureen D. Willmott Evans.

Membership

Diplomas of Membership were granted to the following candidates, who have now complied with the regulations:

P. Chandra, Hilary S. M. Hadaway, T. Standring.

Examiners

Mr. R. M. Vick was elected a member of the Court of Examiners in the vacancy occasioned by the retirement of Mr. Rawling.

The following examiners were elected for the ensuing year:

Dental Surgery (Surgical Section): L. B. Rawling, H. S. Clogg, Russell J. Howard, Gwynne E. O. Williams, John Murray, C. E. Shattock, C. P. G. Wakeley.

Fellowship (Anatomy): P. N. Blake Odgers, *William Wright, J. E. S. Frazer, J. Basil Hume. *(Physiology)*: C. A. Lovatt Evans, R. J. S. McDowall, John Mellanby, *G. A. Buckmaster.

Under Conjoint Board:

Elementary Biology: J. P. Hill, T. J. Evans, G. P. Mudge, C. C. Hentschel. *Anatomy*: R. B. Green, W. E. Le Gros Clark, H. A. Harris. *Physiology*: E. B. Verney, H. Hartridge. *Midwifery*: T. B. Davies, A. W. Bourne, S. Forsdike, L. C. Rivett. *Pathology*: C. H. Fagge, C. E. Shattock, W. Bulloch, R. G. Canti. *Diploma in Public Health (Part I)*: J. W. H. Eyre. *(Part II)*: C. W. Hutt. *Diploma in Tropical Medicine and Hygiene (Pathology and Tropical Hygiene)*: David S. Harvey. *(Tropical Medicine and Surgery)*: G. Carmichael Low. *Diploma in Ophthalmic Medicine and Surgery (Part I)*: W. S. Duke-Elder, C. B. Goulden. *(Part II)*: R. Affleck Greeves. *Diploma in Psychological Medicine*: J. G. Greenfield. *Diploma in Laryngology and Otology (Part I)*: W. M. Mollison, Norman Patterson. *(Part II)*: W. G. Howarth. *Diploma in Gynaecology and Obstetrics*: J. D. Barris.

*Examiners for Australia and Canada.

The Macloghlin Scholarship

Ten candidates were nominated to compete at the pre-medical examination in chemistry and physics beginning on June 30th for the Macloghlin Scholarship.

The Buckston Browne Surgical Research Farm

The ceremonial laying of the foundation stone of the Buckston Browne Surgical Research Farm at Downe, Kent, will take place on July 8th.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly business meeting of the College held on June 5th, the following successful candidates were duly admitted Licentiates and Members of the College: A. J. P. Alexander, A. G. Thompson, H. L. Chopra.

The representative of the College on the Irish Medical Council reported on the recent proceedings of the Council.

A letter was read from the presidents and trustees of Lakeside Hospital, Cleveland, U.S.A., inviting the College to be represented at the dedication of the hospital on June 17th.

The Services

On June 8th Surgeon Rear-Admiral Reginald Bond, C.B., had the honour of being received by His Majesty at Buckingham Palace upon his appointment as Medical Director-General of the Navy.

FLORENCE NIGHTINGALE MEDAL

On the afternoon of June 29th, at Bedford College, Sir Arthur Stanley, chairman of the British Red Cross Society, will present to Dame Anne Beadsmore Smith, D.B.E., R.R.C., the International Red Cross Committee's Florence Nightingale Medal. This is awarded annually to the six most deserving nurses selected by the International Committee from amongst names submitted by the National Red Cross Societies. Dame Anne Beadsmore Smith, who has been matron-in-chief of the Territorial Nursing Service since 1925, served with the Forces throughout the South African war, and was principal matron in France and Malta in Queen Alexandra's Imperial Military Nursing Service from 1914 to 1917, and matron-in-chief of the Q.A.I.M.N.S. at the War Office from 1917 to 1924.

DEATHS IN THE SERVICES

Major Ulick Joseph Bourke, Indian Medical Service, died at Gaya on May 7th, aged 45. He was born on May 12th, 1885, the elder son of Lieut.-Colonel U. J. Bourke, R.A.M.C. (ret.), was educated at Glasgow University and the London Hospital, and took the Scottish triple qualification in 1910. He joined the R.A.M.C. as a temporary lieutenant on January 21st, 1915, took a permanent commission in the I.M.S. on May 30th, 1916, and became major on January 21st, 1927. During the war he served in France and Belgium in 1914–15, in Iraq 1917–18, and in Macedonia in 1918. For the last two years he had held the post of superintendent of Gaya Central Jail.

Lieut.-Colonel Edward Reginald Johnson, Bengal Medical Service (ret.), died in Kensington on May 15th, aged 85. He was born on January 23rd, 1846, the son of William Johnson, Esq., land surveyor, of Stretford, Manchester, was educated at Bart's, and took the M.R.C.S. in 1867 and the L.R.C.P.Ed. and L.S.A. in 1868. Entering the I.M.S. as assistant surgeon on October 1st, 1868, he became surgeon major after twelve years' service, and brigade surgeon lieutenant-colonel on October 1st, 1893, and retired on January 2nd, 1894. He served on the North-East Frontier of India in the Lushai campaign of 1871–72, when he was mentioned in dispatches, and received the frontier medal with a clasp; and in the Akha campaign of 1883–84, when he was again mentioned in dispatches, but no medal was given for that campaign.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons was occupied this week with the Committee Stage of the Finance Bill. Mr. Snowden promised to put down for the Report Stage an amendment exempting from the Land Values Tax all lands owned or occupied by charities for the purpose of the charity or held by them to provide funds for the same purpose. Charities so exempted would include those for the advancement of education and for other purposes beneficial to the community. It will be remembered that the Finance Bill as introduced proposed to exempt the sites of hospitals, but not other property owned by them.

No progress has been made in the Commons with the Pharmacy and Poisons Bill or the Proprietary Medicines Bill.

The House of Lords has read the Representation of the People Bill a second time.

In the House of Lords, on June 16th, Lord Ponsonby moved the second reading of the Bethlem Hospital (Amendment) Bill. He said that the Bill was necessary to enable Bethlem Hospital to be used for the Imperial War Museum. It was proposed to use the centre part of the building, which contained the dome, as the war museum. The rest of the site would remain in the hands of the London County Council as a garden and open space. The Bill was read a second time.

National Insurance Pharmacists

On June 9th Colonel HOWARD-BURY asked if the Government had come to a decision on the proposal to introduce legislation to repeal the section which prohibited insurance chemists from giving an insured person an inducement by gift or otherwise in consideration of his presenting an order for drugs or appliances on a national health insurance form. Miss LAWRENCE replied that legislation was not necessary to deal with this point, but an appeal had been made against a recent decision of the Courts in the matter. Until that appeal had been heard, the Minister of Health could not properly make any statement.

Post-Vaccinal Encephalitis

Mr. GREENWOOD, on June 9th, informed Mr. Freeman that an antivaccinal serum had been made available and had been employed by the medical attendant in those cases of suspected post-vaccinal encephalitis which had been reported since the second report of the Rolleston Committee, and of which sufficiently early information had been received.

Juvenile Mental Defectives in Scotland

Mr. WESTWOOD, replying to Mr. Sinkinson, on June 16th, said that the duty imposed on educational authorities in Scotland by the Mental Deficiency and Lunacy (Scotland) Act, 1913, to ascertain what children residing within their areas were mentally defective within the meaning of the Act and to make provision for the education of those who were capable of receiving benefit from special instruction, extended only to children between 5 and 16 years of age. According to the last return made by education authorities, the number of children between these ages who were ascertained by them to be mentally defective was 4,910, of whom 3,993 were ascertained to be educable, and 917 uneducable. The number of educable mentally defective children receiving instruction in schools and institutions was 3,938. Between the ages of 5 and 18, there were 192 educable and 696 uneducable mental defectives certified under the Act and in residence in certified institutions, and 110 uneducable mental defectives under guardianship in private dwellings. No mental defectives under 18 were in residence at the State institution.

Medical Referees: Workmen's Compensation Act

Mr. SHORT, on June 16th, informed Mr. Stephen that the total number of medical referees appointed under the Workmen's Compensation Act was 272. The preparation of a statement giving their names and the number of cases referred to each would involve considerable labour, which the Home Secretary, on the information before him, did not think would be justified. There were no records in the Home Office showing the number of cases which each medical referee certified as fit for light or ordinary work. Dr. FREMANTLE, on a point of order, suggested that to give the details which Mr. Stephen asked concerning medical referees would not be in the public interest.

Dental Benefit Schemes for Women.—In reply to Mr. Lovat Fraser, on June 10th, Miss LAWRENCE said the number of insured women members of approved societies and branches in England having schemes of dental benefit following the second valuation was approximately 4,250,000. The complete results of the third valuation were not yet available, but from the results already received it was evident that there would be a considerable reduction in the number of women entitled to dental benefit.

Dental and Ophthalmic Treatment.—Mr. GREENWOOD told Mr. John, on June 11th, that there was at present no proposal in contemplation to make dental and ophthalmic treatment statutory benefits for all members of approved societies under the National Health Insurance Acts.

Solitary Confinement.—Replying, on June 11th, to Mr. Freeman, Mr. CLYNES said solitary confinement in prisons had been abolished. The period of employment in separation was done away with altogether by his Prison Rules of April last. For breaches of prison discipline, prisoners were liable to be punished by close confinement, but after the first day on promise of good behaviour were allowed one hour's exercise daily and to attend chapel on Sundays. The modern tendency was to substitute loss of privileges for close confinement.

The Factory Inspectorate.—Replying, on June 11th, to Major Colville, Mr. CLYNES said that following the Departmental Committee's report on the Factory Inspectorate, the Government had decided to increase the general inspection staff from 180 to 243, the medical staff from 5 to 8, the electrical staff from 5 to 12, and the engineering staff from 6 to 10, these increases to be spread over a period of five years.

Imported Meat.—In reply to Sir Charles Cayzer, on June 11th, Mr. GREENWOOD said he had no information with regard to the amount of carton meat at present imported into this country. He had received representations with regard to this meat, and was considering them with certain other questions relating to the control of imported meat under the Public Health (Imported Food) Regulations.

Pensions.—Mr. ROBERTS, on June 15th, informed Mr. Jowett that of the 1,465 applications made under the over-seven-years' limit arrangement recognized for medical treatment or pension or pecuniary grant, in about 950 cases pension, or some addition to an existing pension, was granted, at an estimated cost of about £1,000 a week. The number of cases in which medical treatment only was found necessary was 39.

An All-in Insurance Scheme.—On June 15th Miss LAWRENCE told Sir G. Penny that the possibility of an all-in insurance scheme, including unemployment and health benefits and pensions, to be applicable to a large section of the population was considered by the Cabinet Committee set up to make a general survey of the national insurance and pensions schemes. The subject was dealt with in the committee's report, which was still under the consideration of the Government.

Statistics of Unidentified Bodies.—On June 16th Mr. CLYNES told Mr. Somerville Hastings that 1927 was the most recent year for which figures on the number of unidentified bodies taken to the mortuaries in London were available. Seventy-nine bodies of newly born infants and 74 other bodies found in that year remained unidentified two months after the end of the year. Those numbers fairly represented the yearly average.

Regulations for Patients in Military Hospitals.—Mr. SHAW states that only in exceptional circumstances are patients in military hospitals allowed to leave the grounds of the hospital. The number of ex-soldier patients from the war in military hospitals is practically negligible, and there is no sufficient reason for altering the existing rules as regards soldier patients.

Medical News

The annual dinner of the West London Medico-Chirurgical Society will be held at the Trocadero Restaurant on Wednesday, July 1st, at 7.30 for 7.45 p.m.

The annual dinner of the Cambridge Graduates' Medical Club will be held in Downing College on Friday, July 3rd, at 7.45 p.m., with Sir Humphry Rolleston, Bt., president of the club, in the chair. The annual meeting will precede the dinner at 7.15 o'clock. The honorary secretaries are Mr. Reginald Vick and Dr. F. G. Chandler.

At a meeting of the Society for the Study of Inebriety, to be held in the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., on Tuesday, July 14th, at 4 p.m., Sir Malcolm Delevingne, K.C.B., Deputy Permanent Under-Secretary of State for the Home Office, will deliver an address on drug addiction as an international problem.

The annual general meeting of the Medico-Legal Society will be held at 11, Chandos Street, W.1, on Thursday, June 25th, at 8.15 p.m. This will be followed by an ordinary meeting, when Dr. T. H. Blench will read a paper on "Crime investigation in Paris," to be followed by a discussion.

At the next meeting of the Optical Society, to be held at the Imperial College of Science and Technology, South Kensington, on Thursday, June 25th, at 7.30 p.m., a demonstration will be given by Messrs. H. H. Emsley and E. F. Fincham on the anumbra prism ophthalmoscope.

The Royal Free Hospital, whose two most pressing needs at present are funds to complete the nurses' home and contributions to the general maintenance scheme, is much indebted to the generosity of Miss Ruth Draper in giving, at the Vaudeville Theatre, an extra matinée, with a special programme, for the hospital on June 30th, at 2.45 p.m.

The summer meeting of the Institution of Heating and Ventilating Engineers will be held at Harrogate from June 22nd to 24th. The agenda includes a paper by Mr. A. F. Dufton entitled, "Radiant heat: A contribution to the study of the heating of school buildings."

The forty-second Congress of the Royal Sanitary Institute will be held in Glasgow from July 4th to 11th; Sir Henry Mechan, the founder of the Chair of Public Health in the University of Glasgow, will preside. The subjects to be discussed in the Sections and conference cover a wide field, and include the role of the hospital relative to the development of preventive medicine, and the proposals of the British Medical Association for a general medical service. Dr. Walter Elliot, M.P., will deliver a lecture on "A continuous health policy" on Friday, July 10th. Over 920 delegates have been appointed from Government departments, the colonies, and some foreign nations, as well as 500 municipal authorities, societies, and universities. A health exhibition will also be open during the meeting.

Detailed information about the lectures and demonstrations arranged for next week by the Fellowship of Medicine and Post-Graduate Medical Association will be found at page 260 of the *Supplement*. The special evening lectures to candidates for the M.R.C.P. are being continued. Syllabuses and tickets for all the courses may be had from the Fellowship of Medicine, 1, Wimpole Street, W.1.

A series of weekly lectures on proctology has been arranged by the staff of St. Mark's Hospital, City Road, E.C.1. On Thursday, July 9th, Mr. Lockhart-Mummery will discuss perineal excision of the rectum, with cinematograph demonstration. Sir Charles Gordon-Watson will lecture on carcinoma of the colon on Thursday, July 16th. The injection treatment of piles will be the subject of a lecture by Mr. E. T. C. Milligan on Thursday, July 23rd, and Mr. W. B. Gabriel will speak on anal fissure on Tuesday, July 28th. The lectures commence at 4.30 p.m., and are open to registered medical practitioners free of charge.

The German medical authorities have recently established a wireless coastal station known as "Elbe-Weser-Radio," through which any ship can obtain medical advice, such calls for assistance being connected directly through the new station to the National Hospital at Cuxhaven.

A feature of the International Rotary Conference which is about to be held in Vienna will be a vocational meeting of Rotarian members of the medical profession from all parts of the world to be held in the house of the Gesellschaft der Aerzte. At this meeting Professor Wagner-Jauregg will give a twenty-minute lecture on the treatment of general paralysis by infection with malaria parasites. The lecture has been printed in three languages, and is to be distributed in advance to medical members of the conference.

The international exhibition of hygiene at Dresden has been reopened from May 15th until September 30th.

A statue of the celebrated histologist Professor Ramon y Cayal was recently unveiled in the courtyard of the Madrid Faculty of Medicine.

Professor Fritz Lange of Munich has been made an honorary member of the British Orthopaedic Association.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM* 9861, 9862, 9863, and 9864 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Pyrexia after Confinement

"J. D." writes: A young woman has been running a temperature nightly of 101° to 103° F. since her confinement a month ago. A consultant surgeon has diagnosed mild endometritis and advised quinine and iron, but the patient gets weaker. Can anyone suggest what should be done either to make an exact diagnosis or by way of treatment?

Urticaria

"PRACTITIONER" (Scotland) writes: Can any reader suggest a remedy for urticaria in a very nervous woman, aged 44; duration about two years? Apart from her nervous symptoms, menopausal changes, and haemorrhoids, she is a healthy woman. She has been treated in hospital and in nursing homes (under skin specialists) with everything worth trying—for example, calcium by every method and preparation, adrenaline, pituitrin, bowel irrigation, streptococcal vaccines, etc. The vaccine at first seemed to help a little. Diet has no effect. The urticaria affects arms, body, and face, and to a slight extent the buccal mucous membrane, and recurs every two or three days.

Diabetic Diet on Holiday

Dr. R. H. BLACKBURN (Preston) writes: I wonder if any reader could tell me where a diabetic (a working man) could spend a holiday without the worry of providing his own dietary? The ordinary boarding establishment does not welcome, or cater for, the diabetic, and this man has his holiday spoiled by having to plan and provide his meals. In a strange place, too, it is especially difficult.

Scleroderma with Pernicious Anaemia

Dr. J. BARCROFT ANDERSON writes with reference to the query under this heading (June 6th, p. 1007): Dr. Alex. Patton has omitted to state whether he has excluded pellagra as a possible cause of his patient's illness, and whether he has detected excessive sugar tolerance.

Income Tax

New Practice—Basis of Assessment

"H. C." bought his practice as from April, 1930, and has made his declaration of the profits for 1930-31 on the basis of his cash receipts less expenses. The inspector claims to charge tax on the amount of the bookings, leaving the question of bad debts over until next year. Prior to April, 1930, "H. C." was doing locumtenent work, and used an M.C. 2-seater. He sold that car for £55 and bought a saloon for £290. What should he claim?

*** Income tax is charged on full profits, and not merely on that portion of the profits which has been realized. The cash basis, therefore, cannot be claimed as a right, and in the first year of a practice is unfair to the Revenue, because a full year's expenses are thereby charged against something less than a full year's income. On the other hand, some allowance should be made for probable loss by bad debts. "H. C." should prepare a careful statement setting out a list of the outstanding debts as at April, 1931, and indicate against appropriate items the probable loss through non-payment in each case. The total of these deductions should then be claimed as a set-off from the gross bookings as a specific reserve for bad and doubtful debts. With regard to the car, we consider that "H. C." should be allowed 15 or 20 per cent. of the £290 in respect of depreciation. Such an allowance excludes a renewal claim, but, as the saloon car was purchased in connexion with the new practice, it is doubtful if a renewal or obsolescence claim could properly be made, especially as there was a change in the category of assessment—namely, from assistant to principal.

Proportion of Household Expenses

"C. F. E." explains that he occupies a two-story house in a provincial town, and keeps two maids. The rooms used professionally—on the first floor—are consulting room, secretary's filing room and waiting room, and combined waiting room and dining room, and garage.

*** It is, of course, impossible to do otherwise than try to arrive at a fair approximation—precise calculations are impossible. We think that on the facts stated "C. F. E." should be reasonably satisfied with a compromise on the basis of one-half the Schedule A assessment, rates and repairs, one-third of the cost of lighting and heating, and cost of board, wages, and laundry of one maid.

LETTERS, NOTES, ETC.

Rupture of the Tendons

Mr. HARRY PLATT, M.S., F.R.C.S., writes: May I remedy an omission in my letter in last week's *Journal*? Lines 4 and 5 should read: "I have operated on a professional footballer who had sustained *a complete rupture of the Achilles tendon accompanied by a complete rupture of the plantaris. . . .*"

Chromium Plating

Mr. FRANK MASON, A.M.I.E.E. (managing director of Stainless Plating, Ltd., Sheffield), sends the following note arising out of the correspondence on chromium plating published in our issues of May 9th and 16th: Since the elimination of such culture grounds as are provided by polishing pastes, etc., in crevices is of special interest to both physician and surgeon, the installation of properly chromium-plated metal parts would appear to be of the greatest importance, and incidentally would save much time and money. No polishing whatever is required, and the mere wiping off of all extraneous matter, as one would from a dinner plate or a glass window, is all that is required. Further, because of its extreme hardness, no fear need be entertained of the chromium wearing through by hard rubbing, as in the case of nickel or silver plating. Unfortunately, all processes and operators do not produce the same results. Nevertheless, chrome-plated articles, when properly made and treated with reasonable care, whether they be taps and rails, or sterilizers and the like, will retain their original beauty of colour and polish almost indefinitely. Examples can be seen in many hospitals and similar institutions, as well as in private practice, where fittings have been installed for more than five years and are as good to-day as when fixed. At the Middlesex Hospital some of the chrome-plated fittings have been in use for over two years; they range from the largest sterilizer to the humble screw.

Cave-dwellers of Derbyshire

Dr. J. S. MANSON (Warrington) writes: The excellent summary of Mr. A. Leslie Armstrong's lecture to the Warrington Division in your issue of June 6th (p. 998) omits reference to the most important discovery yet made by him in the exploration of the Pin Hole Cave. This was a portion of a rib of a reindeer, on which was engraved a human figure representing a man with a mask in a dancing posture. This find is unique in English archaeology, and as an example of Aurignacian culture brings this cave into line with the classic caves of Aurignac in France and Altmira in Spain. Readers of the summary not yet aware of this discovery will appreciate, I am sure, the significance of this specimen of Upper Palaeolithic culture in England. There is a slight error in the eighth line of the summary: "Marlborough" should be "Harborough."

Sight Test for Motorists

We are informed that the Automobile Association is appealing against the recent decision of the Divisional Court concerning motorists who are unable to read a number plate at twenty-five yards. The Divisional Court decided that there was no right of appeal against the refusal of the licensing authority to grant a driving licence. It is the contention of the A.A. that, under Section 5 (Subsection 5) of the Road Traffic Act, motorists have a general right of appeal, and the present action is being taken in the interests of motorists who, though unable to read the letters or figures on a number plate at twenty-five yards, have driven for long periods without accident or infraction of the law.

Medical Golf

At the summer meeting of the Shropshire Medical Golf Association, held on May 31st at Church Stretton, deep regret was expressed at the recent death of Dr. George Higginson, who had not missed a meeting since the association was founded in 1919. The winner of the association's Challenge Bowl was Dr. Harker of Oswestry, whose score was 67 net (77 - 10). The Foursomes versus Bogey Competition resulted in a tie between Drs. Beckett and Richardson and Dr. J. C. Davies and Mr. A. Lavelle (1 up). Arrangements were made for holding the next meeting at the Wrekin Golf Club on the second Sunday in October.

The spring meeting of the Sussex Medical (B.M.A.) Golfing Society was held at the new course of the West Sussex Golf Club at Storrington. Twenty-four members were present. On the morning round the Challenge Cup was won by Dr. A. E. Drynan (78 net). In the afternoon Drs. F. Heckford and J. K. Raymond won the four-ball foursome against bogey (2 up).

A Disclaimer

Dr. W. ANNANDALE TROUP writes: It has been brought to my notice that a large number of booklets containing my views on the titanium alloy arc, accompanied by an advertisement of a certain apparatus, have been circulated widely among the profession. I would like it to be made perfectly clear that this was done without my knowledge and without my consent.

Surgery and Diet

We regret that the name of Professor S. B. Wolbach of Harvard was wrongly spelt in Colonel McCarrison's first lecture (published on June 6th, p. 966), and in our leading article on June 13th (p. 1031).

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 50, 51, 52, 53, 54, 55, 56, 57, 60, and 61 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 58 and 59.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 259.

Observations
ON
A CEREBRO-SPINAL FEVER OUTBREAK IN THE ROYAL AIR FORCE IN 1931

BY

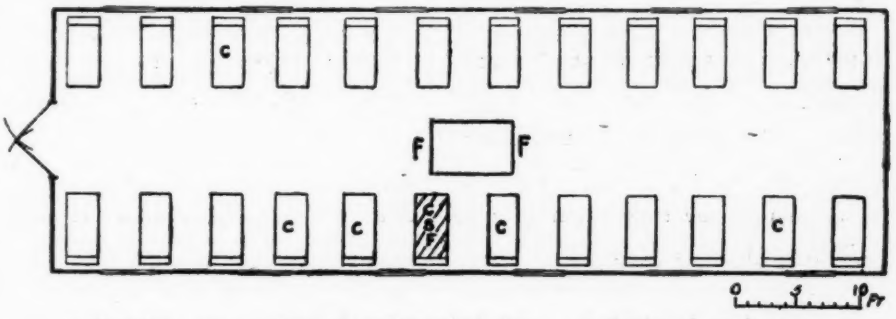
WING COMMANDER H. E. WHITTINGHAM, C.B.E., M.B., F.R.C.P.ED., D.P.H.

FLIGHT LIEUTENANT J. M. KILPATRICK, M.B., B.CH.

AND

FLYING OFFICER E. W. B. GRIFFITHS, M.B., CH.B.
ROYAL AIR FORCE MEDICAL SERVICE

Since 1919 there have been sporadic cases of cerebro-spinal meningitis in the Royal Air Force, chiefly among recruits, and the bacteriological examination of swabbings from the nasopharynx of the more immediate contacts has resulted in the prompt detection and consequent isolation of meningococcus "carriers" in each instance. The spread of the disease has been arrested, possibly by this speedy isolation of carriers, or by good fortune, so that more stringent prophylactic measures have not been necessary. But in the beginning of the present year there occurred a series of cases of cerebro-spinal fever of the fulminating type which were not so readily controlled, and during the investigation of this outbreak certain interesting observations were made regarding the origin, spread, and control of the infection and the treatment of the disease.



F = Fireplace. C.S.F. = Case of cerebro-spinal fever. C = Carrier of meningococcus.

CHART 1.—Showing the general arrangement of beds in barrack rooms and the occurrence of a case of cerebro-spinal fever in a bed in close proximity to the fireplace (see text). The position of contact carriers of meningococcus is also indicated. The space between adjacent beds is approximately 3 feet.

HISTORY OF THE OUTBREAK

The outbreak occurred at Uxbridge, and was coincident with an influx of new recruits of susceptible age, the advent of cold, foggy weather, and the issue of a more liberal coal allowance to mitigate the rigours of the winter. The provision of fires in the barrack rooms led naturally to a crowding together of men around the fireplace in the evenings, and this appears to have played an important part in the dissemination of the infection; it was not purely a question of bed space. The first case occurred on January 4th, 1931, the second on January 5th, and then serially on the 8th, 17th, 24th, 25th, 27th, and 31st, and on February 7th, 10th, 11th, and 14th. In all, there were twelve cases of cerebro-spinal fever of the malignant type, and there was no direct connexion as regards infection between any of them, with the exception of the patients (Cases Nos. 9 and 11) who occupied adjacent beds; in all other instances the patients were drawn from widely separated barrack rooms. This distribution of cases pointed to some common source of infection, such as the cinema, concert room, or canteen. The isolation of contact carriers of the early cases, and the closure of the cinema and the cessation of other forms of indoor entertainment, did not check the spread of the disease. But on February 12th the canteen was closed, and a more extensive search was made for contact and non-contact meningococcus carriers throughout the depot. Following on this action the outbreak terminated abruptly within forty-eight hours.

ORIGIN OF THE INFECTION

The first patient in the present epidemic came from a barrack room in which there was an airman (G. T. C.) who had been isolated previously as a meningococcus carrier during the examination of contacts of a sporadic case of cerebro-spinal fever which occurred at Uxbridge in May, 1930. This carrier was then proved to harbour Type I meningococcus, and he continued to carry this organism for five weeks. After repeated nasopharyngeal swabbings were found to be negative, he was pronounced free from infection in July, 1930. He returned to duty at Uxbridge Depot on July 20th, and, despite his sojourn among other recruits, there was no recurrence of cerebro-spinal fever until the present outbreak, which commenced at the beginning of January, 1931, in a different barrack room from that which had been occupied by the patient in the sporadic case referred to above.

It is difficult to prove that the present outbreak of fever originated from this old carrier (G. T. C.), but it is significant that he was found, in January, 1931, to be still harbouring meningococci of the type responsible for the infection, and that he was a close contact of the first case. It is to be observed, however, that cerebro-spinal fever had been prevalent among the civil population since October, 1930, and that its incidence was increasing rapidly when the R.A.F. outbreak started; this factor undoubtedly added to the number of meningococcus carriers among the newly joined recruits, and so helped to bring the carrier rate at the Uxbridge Depot to the danger level.

SPREAD OF THE INFECTION

This raises the question of overcrowding in barrack rooms. There was no overcrowding as regards the actual bed space, and the barracks were well ventilated. The beds were spaced 2½ to 3 feet apart, and the windows were kept open day and night. Heating was attained by means of two open fireplaces situated towards the centre of each room. One or other of these fires was usually lighted about tea-time, and during the evening the inmates (twenty to twenty-four in number) naturally congregated at the fireside, so that in any barrack room, probably, the air was most impure in this region. It follows that those individuals whose beds occupied this central area continued to breathe this vitiated atmosphere longer than their room-mates, and it is significant that the first and all subsequent cases of cerebro-spinal fever, except Case No. 8, occurred in airmen occupying beds in close proximity to the fireplace in use (see Chart 1).

In this connexion it is interesting to compare the meningococcus carrier rate of newly joined recruits at Uxbridge and at Halton; in the seventh week of this year it was 15 per cent. and 3 per cent. respectively. The local heating arrangements may help to explain this

difference in the carrier rates. The airmen in both places are housed in barracks similar as regards cubic and floor space per man, but dissimilar as regards the mode of heating. The Halton barracks, which have been singularly free from cerebro-spinal fever, are centrally heated, so that each inmate tends to keep his own bed area, and there is no local overcrowding, whereas at Uxbridge the heating is by open fireplaces, leading to central crowding in each room, with results as described above.

Where did the men get the meningococcus into their upper respiratory passages with which to infect the air of the dormitories? As has been stated, the twelve cases occurred in separate barrack rooms (with one exception), indicating some common source of infection. Originally this infection may have taken place in one or in all of several places in which the airmen congregated—for example, cinema, dance hall, concert room, and canteen. The closure of all common meeting places, with the exception of the dining hall and canteen, together with the adoption of routine disinfection of the nasopharynx of all personnel by means of gargles, nasal douches, and sprays, as described later under "Control of the disease," did not stay the epidemic. Two obvious gaps were left in the chain of control—the dining hall and the canteen. In the dining hall the men of each barrack room sat at appointed tables, so that there was little likelihood of the inmates of one room infecting those of another here. In the canteen the men from different barrack rooms mingled freely in a warm and moisture-laden atmosphere, under social conditions conducive to the spread of disease by droplet infection; this was especially the case on a Friday (pay-day), for then the men flocked to the canteen. Strength is given to the supposition that infection took place chiefly in the canteen, and on a Friday, from the observation that cases of cerebro-spinal fever arose usually on the following Saturday, Sunday, Monday, or Tuesday—that is, within the recognized incubation period for the disease—and from the fact that the closure of the canteen was followed by the abrupt cessation of the epidemic (see Chart 2).

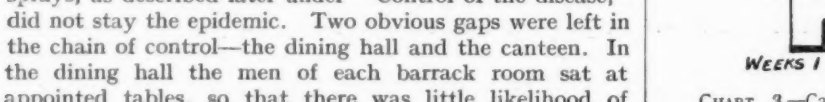


CHART 2.—Showing the relationship between the case incidence of cerebro-spinal fever and the crowding together of men in the canteen on Fridays—that is, pay-days.

A further isolated or sporadic case of cerebro-spinal fever occurred at the R.A.F. Depot, Uxbridge, on March 20th, 1931—that is, eleven days after the general prophylactic measures were relaxed. This patient, a recruit, had four days previously travelled 140 miles along with a number of his comrades in a closed charabanc. Infection in this instance presumably occurred from contact with meningococcus carriers during the long journey in a closed vehicle, as subsequently two carriers were detected among the passengers in the coach.

MENINGOCOCCUS CARRIERS

It has been established by Netter and Debré that the meningococcus carrier rate of a community bears a direct relationship to the development of cases of cerebro-spinal fever; the incidence and severity of the disease usually run parallel with the number of carriers. The outbreak at Uxbridge proved to be no exception to this rule.

Chart 3 indicates the meningococcus carrier rate and case incidence of cerebro-spinal fever among 542 recruits at Uxbridge during the first eight weeks of 1931. The percentage of carriers in the first week of January was 10; during the third week it was 19½. The practice of general prophylactic measures, such as the spraying of the throats of all personnel, the isolation of all detected carriers, and the closing of the cinema, did not check the epidemic. By the sixth week of the year the carrier rate had reached 32 per cent. This was the acme, however, for in the seventh and eighth weeks, following on the closure of the canteen, the rate fell rapidly to 17 and 5 per cent. respectively. The case incidence of the disease rose and fell with the carrier rate, and ceased abruptly when this rate reached normal limits—that is, below 6 per cent.

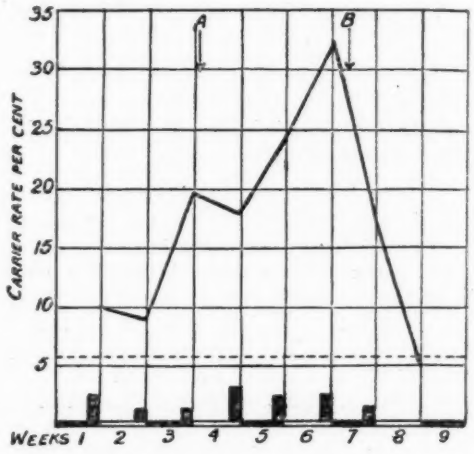


CHART 3.—Carrier rate shown by continuous black line. Cases of cerebro-spinal fever represented by vertical black columns. Upper limit of normal meningococcus carrier rate indicated by dotted line. A = Adoption of general prophylactic measures and closure of cinema. B, Closure of canteen.

In all, 120 carriers were detected and isolated, or, in other words, 22 per cent. of the recruits were found to carry the meningococcus. Moreover, the distribution of these carriers throughout the various barrack rooms was fairly uniform, as was shown by a general swabbing. Of these, 45 (37½ per cent.) were contact carriers, and 75 (62½ per cent.) were non-contact carriers. A contact carrier is defined as one who is known to have been in contact with a case of cerebro-spinal fever. This classification is unsatisfactory, as it is probable that many, if not most, of the so-called non-contact carriers had become infected from cases in the canteen or elsewhere. Most of the known contact carriers had been in very close relation to patients with the fever; they slept in adjacent or opposite beds, or had used the same cups, or had been intimate friends.

The duration of the infectivity of meningococcus carriers who are undergoing nasopharyngeal disinfection daily is of practical importance, and is indicated in Table I. It was found that 55 per cent. of the carriers were free from infection within three weeks, and 75 per cent. within a month. One carrier was of the chronic type; it was proved that he had harboured the meningococcus intermittently for the past ten months—that is, since May, 1930.

TABLE I.—*Showing the average length of time that meningococcus carriers, undergoing nasopharyngeal disinfection daily, carried the germ.*

Nasopharynx Clear of Meningococcus	Number of Carriers	Percentage of Carriers	
In 2 weeks	18	15	
3 „	48	40	75
4 „	24	20	
5 „	15	12½	25
6 „	15	12½	

The effect that the meningococcus had on the health of the carriers remains to be considered. None of the carriers, isolated as such, developed true cerebro-spinal fever, but 19 suffered from a pyrexia of the influenzal type and 26 had acute nasopharyngitis; whereas 75 remained apparently in normal health. If the twelve cases of cerebro-spinal fever be included, then 43 per cent. of the carriers showed signs of some acute infection, and 57 per cent. remained healthy; only 10 per cent. of the men who harboured the meningococcus in their nasopharynx contracted the specific meningitis. Table II amplifies these points, and indicates the varying degrees of immunity developed against the meningococcus; thus there may be health, a local throat infection, a more generalized sepsis, or actual meningitis and septicaemia.

TABLE II.—*Meningococcus Present in the Nasopharynx of 132 Men*

12 (9 per cent.) suffered from cerebro-spinal fever	43 per cent. unhealthy carriers.
19 (15 per cent.) suffered from influenza	
26 (19 per cent.) suffered from nasopharyngitis...	
75 (57 per cent.) remained healthy	57 per cent. healthy carriers.

MENINGISMUS

Those individuals who had pyrexia of the influenzal type accompanied by severe headache, together with tenderness of the neck muscles, and had meningococcus in their upper air passages, but not in their cerebro-spinal fluid, might have been diagnosed as suffering from meningismus or meningism—a condition referred to by Flack,[2] Horder,[3] and others during the war. In these cases the meningococcus was possibly the organism responsible for the infection, although Pfeiffer's bacillus was present also in many instances. It mattered little whether the diagnosis was meningismus or influenza, so long as it was recognized that these cases were not examples of cerebro-spinal meningitis, otherwise the serum, or whatever other treatment was given, might have been credited with unmerited curative power. This was not purely a matter of academic interest, but one of vital practical importance, as the therapeutic treatment of cerebro-spinal fever was, and still is, *sub judice*. In many instances a dose of antimeningococcus serum was given to a doubtful case pending the diagnosis; this was a justifiable and a wise measure to carry out during an epidemic of cerebro-spinal fever; in fact, the serum may have prevented the onset of meningitis in some cases. The problem, however, was to differentiate between meningismus or influenza and the early stages or milder attacks of cerebro-spinal fever.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of typical cases was easy, but many suspected cases called for a very careful clinical examination, together with a total leucocyte count of the blood and, at times, lumbar puncture. Special attention was paid to the mode of onset of the disease. Early onset of vomiting, especially if continued, severe headache, stiffness and tenderness of the neck muscles (this was best elicited in early cases by performing Kernig's test alone or in conjunction with Brudzinski's, and inquiring whether the patient felt any stiffness elsewhere than in the hamstrings), a varying degree of pyrexia, a pulse-respiratory rate of 3 to 1 or even 2 to 1, together with distinct nervous irritability, tache cérébrale, and inequality, dilatation, or contraction of the pupils were strong evidence of cerebro-spinal fever. Whereas in the influenza cases early and distinct pyrexia (103 to 105° F.) was the prominent symptom, there was little or no tenderness of the neck muscles, and the Kernig test was negative, the pulse-respiratory ratio was normal, nervous irritability was negligible, the pupils were normal, and vomiting was rare and not continued.

Two laboratory tests were found to be of great diagnostic value: a leucocyte count of the blood and the examination of the cerebro-spinal fluid. There was invariably a distinct leucocytosis, even early, in all cases of cerebro-spinal fever; while in influenza a leucopenia or normal count proved the rule. A total leucocyte count was performed as a routine in all cases of pyrexia or suspected cerebro-spinal fever. If the blood count showed the presence of more than 13,000 leucocytes per c.mm., without any clinical condition to account for the leucocytosis, a lumbar puncture was performed; the naked-eye appearance of the cerebro-spinal fluid was often sufficient to clinch the diagnosis without awaiting the result of cytological or cultural examination. On the other hand, if the total white cell count was normal or showed a leucopenia, and there was no definite clinical evidence to suggest meningitis, the patient was watched, and a further count done on the following day, unless the symptoms pointed to the need for earlier intervention: the continued absence of a leucocytosis was a contra-indication of cerebro-spinal fever. In all doubtful cases lumbar puncture was performed. The cerebro-spinal fluid, at times even from fulminating cases of meningitis, appeared clear to the naked eye at the first puncture, but examination in the laboratory showed an increased cell count (60 or more polymorphs per c.mm.), together with an increased albumin content (0.1 to 0.4 per cent. or more) and frequently meningococci in the direct smears, certainly in culture during the next twenty-four to forty-eight hours. Cases of meningismus had clear, sterile cerebro-spinal fluid, with low cell count (about 10 cells per c.mm.) and a practically normal albumin content (0.03 to 0.05 per cent.).

No case was diagnosed as cerebro-spinal meningitis unless the specific organism was seen in, or isolated from, the cerebro-spinal fluid.

FULMINATING CEREBRO-SPINAL FEVER

The twelve cases of cerebro-spinal fever which form the basis of this paper were of the fulminating or malignant type. It might be argued that these were not all fulminating cases, as the patients did not die within three days, but it is maintained that they probably would have done so had it not been for the treatment given to them. The general description of the cases should dispel doubt on this point.

Etiology

The occurrence of cerebro-spinal fever in the recent R.A.F. outbreak was confined to newly joined recruits who were apparently in robust health. The average length of service was ten weeks, and the age incidence varied between 18 and 23½ years, the average age thus being 19¾. In four out of the twelve cases there was a history of influenza commencing five to ten days prior to the onset of the meningitis.

Meningococcus Type I, so far as could be ascertained with the high titre agglutination serums available, was isolated from the cerebro-spinal fluid in every instance. In one of the fatal cases *B. influenzae* Pfeiffer was also present in the cerebro-spinal fluid.

Strains of the meningococcus isolated were forwarded to the Ministry of Health Laboratory and to the Lister Institute in connexion with the preparation of a new anti-meningococcus serum.

Clinical Picture

Onset was always abrupt. The earliest symptoms were severe headache and repeated vomiting, often in the absence of pyrexia. Lumbar puncture, when performed at this stage, usually revealed a clear cerebro-spinal fluid containing 30 to 60 leucocytes per c.mm. Within six to eight hours the fluid became opalescent and showed a cellular content of 10,000 to 15,000 leucocytes per c.mm., also a high albumin content, even in cases where serum was not administered during the first puncture. At the same time there was marked exacerbation of the clinical symptoms—the temperature rose to 102° to 105°, there was violent delirium, followed rapidly by coma and accompanied by generalized petechiae. Head retraction was marked, and breathing became of the Cheyne-Stokes variety. The following notes bring out these points.

Case Illustrating Rapid Death

J. McK., aged 18 years 4 months (five weeks' service), reported sick at 9 a.m. on February 11th, 1931, complaining of headache, vomiting, and pains in back and legs; his temperature was normal. In the afternoon his temperature rose to 102°, he vomited several times, and became violent. Shortly afterwards he passed into coma. He was admitted to hospital at 8 p.m. in a deeply comatose condition, with stertorous breathing, pupils fixed in semi-dilatation, marked head retraction, Kernig's sign positive, knee-jerks and superficial abdominal reflexes absent, and generalized purpuric rash; temperature 102°; pulse rate 60; respirations 24. Lumbar puncture was performed at once and 60 c.cm. turbid fluid withdrawn—the cerebro-spinal fluid contained 15,000 leucocytes per c.mm., and meningococci were numerous. Antimeningococcus serum was administered—40 c.cm. intrathecally and 20 c.cm. intravenously. The clinical symptoms, however, gradually got worse, pulse rate and respirations increased (pulse rate 160, respirations 52), the patient became markedly cyanosed, and died suddenly at midnight, within fifteen hours of the onset of the disease.

Case Illustrating Average Recovery

H. W. P., aged 19 (two weeks' service), reported sick on February 7th, 1931, and was treated for influenza at his unit. The salient features of his illness were headache and backache, together with a moderate degree of pyrexia. The usual antipyretic remedies were given, and he had apparently recovered on February 12th. During the following night he had severe headache, and vomited several times. At noon on the 14th his temperature rose to 104.6°, and he became semi-comatose while being transported to hospital.

On admission he was comatose; temperature was 103.8°, pulse rate 104, and respiratory rate 36, breathing being stertorous. Pupils were dilated and scarcely reacted to light; eye-balls wandering. Knee-jerks were sluggish, and abdominal reflexes were absent. Kernig's sign was present, and neck muscles were spastic. A widespread petechial rash was present on trunk and limbs. A blood count showed a leucocytosis of 23,000 per c.mm., 91½ per cent. being polymorphs. Lumbar puncture was performed immediately, and 50 c.cm. turbid fluid were withdrawn under considerable pressure. The cerebro-spinal fluid contained 10,800 cells per c.mm. (97 per cent. were polymorph leucocytes), and showed the presence of many Gram-negative diplococci, which were chiefly extracellular. On culture, meningococcus Type I was isolated.

After draining off 40 c.cm. of the cerebro-spinal fluid, the subarachnoid space was irrigated with 160 c.cm. of normal saline. Then 20 c.cm. of concentrated globulin solution antimeningococcus serum were injected intrathecally. Consciousness was partly regained soon afterwards.

Eight hours later lumbar puncture was repeated, and 60 c.cm. cerebro-spinal fluid were withdrawn. This was followed by saline irrigation, and the administration of 25 c.cm. antimeningococcus serum intrathecally and 20 c.cm. intravenously. The patient was now conscious, although cerebration was slow. Temperature was 104°, pulse rate 108, respirations 26. Spasm of neck muscles had greatly relaxed.

Lumbar puncture, the withdrawal of 40 to 60 c.cm. of cerebro-spinal fluid, followed by saline irrigation of the subarachnoid space, and the administration of 20 c.cm. of antimeningococcus serum intrathecally were carried out twice daily for the first four days of illness, and then once a day for the next six days—that is, four days after the meningococcus was last isolated from the cerebro-spinal fluid. Antiserum was also given intravenously (10 to 20 c.cm. daily) for the first four days of the disease to counteract the septicaemia.

Under this treatment the patient's temperature for the first two days oscillated between 104° and 99°, the pulse rate remained relatively low (70 to 90), and the respiratory rate was 28. From the third to eleventh day of the disease the temperature varied daily between 100° and normal, pulse rate was 80 to 90, respiratory rate was 20 to 28. On the tenth day of illness the temperature was 100°, there was a well-developed and generalized serum rash, and the larger joints ached. Adrenaline (1 in 1,000) was given subcutaneously in 1/2 c.cm. doses at four-hour intervals, but there was no amelioration of symptoms. The following day 0.125 gram contramine was injected intramuscularly; improvement occurred quickly, and the rash disappeared completely in twenty-four hours. Progress thereafter was uneventful, the patient being allowed up a fortnight later.

This case illustrates the rapid onset of the septicaemic type of cerebro-spinal fever, and the method of treating this condition by means of intrathecal lavage with saline prior to the injection of antimeningococcus serum; also the apparent influence of contramine on the late serum manifestations.

Case Illustrating Slow Recovery and Complications

C. L., aged 23 (eight weeks' service), complained on January 5th, 1931, of severe headache, pains in limbs, and sore throat. Tongue was furred, and temperature was 101°. The following morning he had a rigor; headache was worse, there was vomiting, rigidity of neck, a positive Kernig sign, and extensive purpuric eruption over trunk and limbs. He rapidly became stuporose. Lumbar puncture was performed, and the cerebro-spinal fluid was found to be under pressure and very turbid. Laboratory examination of the fluid showed a cell count of 12,800 leucocytes per c.mm., 96 per cent. of these being polymorphs, a protein content of 0.9 per cent., and the presence of numerous meningococci, both extracellular and intracellular; cultures and serological tests proved the organism to be meningococcus Type I.

For the first four days the patient was lumbar-punctured twice daily, and once a day during the next six days. Only 20 to 30 c.cm. of cerebro-spinal fluid were removed at each puncture, and then 10 to 20 c.cm. of antimeningococcus serum (globulin solution) were given intrathecally without any previous saline irrigation. In addition, small doses of the serum (10 to 20 c.cm.) were given intravenously and intramuscularly each day. In all, 160 c.cm. of cerebro-spinal fluid were removed, and 125 c.cm. of antimeningococcus serum given intrathecally, 120 c.cm. intramuscularly, and 50 c.cm. intravenously.

During this time the patient had been extremely weak, often so delirious and violent that sedatives were much required. But by the eleventh day of the disease (January 16th) the meningeal symptoms were almost *nil*, and the meningococcus had disappeared from the cerebro-spinal fluid. The temperature, however, was raised, and ranged between 99° and 102° for the first three weeks of the illness, the pulse rate varied between 80 and 120, and the respiratory rate between 20 and 30.

The following complications arose: suppurative arthritis of the left knee commenced on the ninth day of illness and took two weeks to subside; acute orchitis (left) began on the twelfth day of disease and resolved in ten days; acute nephritis manifested itself on the twelfth day but cleared up within three weeks; otitis media, both ears, was first noticed on the seventeenth day of illness, and persisted for ten weeks.

This case illustrates the slow recovery of a patient treated by the withdrawal of small quantities of cerebro-spinal fluid and the administration of relatively small doses of antiserum.*

The Leucocyte Count of the Blood

The total leucocyte count of the blood was increased very early in the disease to 14,000 or more per c.mm., and in the next twelve to twenty-four hours it increased rapidly to 20,000 to 40,000 per c.mm., depending on the severity of the case. After the second day, in favourable cases, the count fell rapidly to 12,000 to 15,000 per c.mm., and remained about this level for the next fortnight (see Table III). In unfavourable cases there was usually an increase in the leucocytes up to 30,000 to 50,000 per c.mm. during the second day, and thereafter there was no tendency to fall. A persistently high leucocytosis was found to coincide with a thickening and holding up of the cerebro-spinal fluid. The total white cell count proved in many instances to be a valuable aid in deciding whether further lumbar puncture was necessary.

The differential leucocyte count showed usually that 90 to 96 per cent. of the total white cells were of the polymorph variety. The Arneth index during the first four days of the disease read somewhat as follows: 5:50:30:10:5. The differential count was therefore of little clinical value.

The Cerebro-spinal Fluid

The most important characteristics of the cerebro-spinal fluid, as regards diagnosis, were the naked-eye appearance, the leucocyte and protein content, and the presence or absence of meningococci.

The naked-eye appearance and cellular content of the fluid ran parallel; thus the greater the cell content, the more opalescent was the fluid. In favourable cases the fluid became more opalescent and the leucocyte count rose for twenty-four to forty-eight hours (to 20,000 or 40,000 cells per c.mm.) after the first administration of serum intrathecally, but the following day the opalescence diminished distinctly and the cell count fell rapidly to less than 10,000 per c.mm., and the figure gradually became lower daily (see Table III). In some unfavourable cases, the cerebro-spinal fluid was only slightly opalescent, but contained extracellular cocci in large numbers; in others the fluid became and remained like thick cream, while the cell content rose and remained at a high figure—50,000 or even 90,000 leucocytes per c.mm. This thick fluid tended to stagnate in the subarachnoid space, and thus complicated intrathecal medication. A differential count of the leucocytes in the cerebro-spinal fluid of these cases showed that 90 to 97 per cent. were usually of the polymorph variety.

The protein content was invariably high, ranging between 0.4 and 1.2 per cent. Even at the beginning of the disease, when the fluid was clear and the cell count was low, the protein content was found to be about 0.5 per cent., and this increased rapidly during the next twelve hours. The protein figure, prior to intrathecal serum injection, was in direct proportion to the severity of the disease; the higher the protein content, the more grave was the prognosis.

Meningococci were found in smears made from the deposit of the cerebro-spinal fluid that was withdrawn at the first puncture in every instance. At times they were very numerous, extracellular and intracellular cocci being present in every microscopical field. On other occasions they were so scanty that they were found only after prolonged search, and then they were usually extracellular: culture verified their identity. A rough estimate was made each day of the proportion of extracellular to intracellular cocci, and the finding confirmed Horder's statement referring to the intracellular position of the meningococcus—"The more marked this is, the better the outlook, and vice versa."[3] The correctness of this observation was striking in two instances in which the cocci tended to remain extracellular, and yet the patients appeared to be doing well clinically; both these cases terminated abruptly in death.

The meningococcus was readily obtained in pure culture from the cerebro-spinal fluid, even of patients under serum treatment up to the fifth to tenth day, depending on the case. The routine procedure was to incubate the fluid as withdrawn for six to eight hours at 37° C., subculture heavily from the deposit on to blood agar slopes previously warmed to body temperature, and to incubate these at 37° C. for one to two days.

The mortality rate was 50 per cent. There were 12 cases, 6 of which ended fatally; all the deaths occurred by the fifth day of disease. This rate compares favourably with that recorded by most observers for the fulminating type of cerebro-spinal fever.

TABLE III.—*Tabular record of a severe case of cerebro-spinal fever ending in speedy recovery. This indicates the more important clinical facts that should be recorded during the treatment of a case of cerebro-spinal fever.*

Day of Disease	Temperature	Pulse Rate	Respirations	Blood. Leucocytes per c.mm.	Cerebro-spinal Fluid			Treatment			
					Amount Withdrawn c.cm.	Leucocytes per c.mm.	Meningococcus	Saline Washout c.cm.	T. c.cm.	V. c.cm.	M. c.cm.
1	104.0	100	36	23,800	45 and 60	10,800	Numerous E	160 80	20 25	— 20	5 —
2	103.0	96	20	17,600	40 and 60	26,000	Numerous EI	100 160	20 20	20 10	— —
3	100.0	72	24	12,600	50 and 45	14,800	Moderate I	95 100	20 20	— 10	— —
4	100.4	88	20	10,400	50 and 35	4,000	Few I	140 100	20 15	— —	— —
5	98.8	88	20	11,600	50	2,000	Few I	80	15	—	—
6	97.4	70	18	12,000	50	3,000	Nil	80	15	—	—
7	100.4	80	20	12,500	60	400	Nil	60	10	—	—
8	99.4	80	20	15,000	50	200	Nil	40	5	—	—
9	98.8	88	18	14,000	45	320	Nil	50	—	—	—
10	98.4	72	18	13,800	50	300	Nil	80	—	—	—
11	97.4	76	20	11,600	—	—	—	—	—	—	—
12	98.0	70	18	10,800	—	—	—	—	—	—	—

E = extracellular. I = intracellular. T = intrathecal serum injection. V = intravenous serum injection. M = intramuscular serum injection.

* These cases of cerebro-spinal fever were treated at the R.A.F. Infectious Diseases Hospital, Halton.

Treatment

Treatment was carried out at first along lines that had been found beneficial when dealing with previous cases of cerebro-spinal fever; antimeningococcus serum was the sheet-anchor. Unfortunately, in the recent epidemic, the meningococcus causing the infection was Type I, whereas the bulk of the therapeutic serum available in this country was made chiefly for use against Type II of the organism. It soon became evident that the antimeningococcus serum was not to be relied upon to the same extent as formerly, so that certain details of treatment that were considered previously to be of secondary importance now took pride of place. Particular attention was paid, therefore, to the adequate relief of pressure within the subarachnoid space in order to lessen its injurious effects on the nerve centres, especially those in the medulla; also to efficient irrigation of the subarachnoid space to help to remove the pus and meningococci and to aid in the circulation of the antimeningococcus serum. The question was whether the subarachnoid space should be irrigated by means of saline as advocated by Hirsch,[4] and Aubertin and Chabanier,[5] or by promoting the secretion of cerebro-spinal fluid and increasing the intrathecal pressure by means of a general anaesthetic, as recommended by Flack.[3] After experience with both methods, the use of saline irrigation was deemed the more suitable, as this conserved the body fluids and cast no unnecessary strain upon the respiratory organs, already the seat of inflammation in most cases; in addition, the sensations of the conscious patient served as guides for both the amount and rate of fluid required to be withdrawn and injected. In two instances there was a local blockage in the subarachnoid space of such degree that after the third day of disease little fluid could be withdrawn by lumbar puncture; a general anaesthetic (ether) was given for three-quarters of an hour, the needle being left in position, and yet no more fluid could be obtained. Cistern puncture confirmed the theory of local blockage of the subarachnoid space, for the cell content of the fluid obtained by cistern puncture was roughly one hundred times less than that obtained by lumbar puncture. In such cases as these it was felt that general anaesthesia might do more harm than good.

The following routine treatment was found to give the most satisfactory results, and was adopted eventually for all definite cases of cerebro-spinal fever.

Immediately on admission to the ward 1/4 grain of morphine was given hypodermically as a sedative, and 5 c.cm. of antimeningococcus serum were injected intramuscularly into the flank to act as a desensitizing dose. By the time that the patient was cleaned (fifteen to twenty minutes) hypnosis was sufficient to permit the lumbar puncture to be undertaken. About 1/2 c.cm. of 5 per cent. novocain solution was injected intradermally over the site chosen for the lumbar puncture, usually the third interspace, and after re-washing the hands the operator made his puncture. The cerebro-spinal fluid was allowed to flow so long as it was under distinct pressure, 40 to 60 c.cm. being always drawn off, more if necessary; in some instances up to 90 c.cm. of fluid were removed with ease. In cases where the flow tended to be very rapid, the stylet was pushed partly home to lessen the rate of flow, and so more gradually lower the intracranial pressure. Relief of fluid usually made comatose patients pass into irritability, less marked when under the action of morphine; judicious handling by attendants controlled this excitability. During the above procedure 200 c.cm. of sterile normal saline were warmed to 37° C. This saline was used to irrigate the subarachnoid space. A 20 c.cm. syringe was filled with the saline and connected directly to the lumbar puncture needle, and the salt solution was injected slowly—about four to five minutes being allowed for the 20 c.cm. The stylet was inserted and the foot of the bed raised on blocks for a few minutes, then lowered, the stylet removed, and the saline allowed to drain off into a measure glass. This process was repeated until 100 to 200 c.cm. of saline were used and the washings came away fairly clear; great care was taken throughout to see that at least as much fluid was drawn off as went in. The last washing usually consisted of a mixture of 10 c.cm. saline and 10 c.cm. antiserum. The antimeningococcus serum (globulin solution), warmed to body heat, and well shaken so as to include the deposit, the most potent portion of the serum, was then injected slowly by means of the syringe. The dosage was 20 to 40 c.cm., depending on the amount of fluid withdrawn; it was found expedient to inject considerably less serum than the amount of cerebro-spinal fluid removed, otherwise symptoms of increased intrathecal pressure manifested themselves within a few hours. Thus, if 60 c.cm. of cerebro-spinal fluid were obtained, not more than 30 c.cm. of serum were injected intrathecally. The foot of the bed was raised during the administration of the serum, and kept raised for at least two hours afterwards to facilitate gravitation of the serum towards the brain. Finally, 10 c.cm. of antimeningococcus serum were injected intravenously to counteract the septicaemia which was a prominent feature of these cases.

This procedure of lumbar puncture, saline irrigation of the subarachnoid space, and intrathecal injection of antiserum was repeated within eight hours, then given twice daily until the fourth or fifth day, and once daily for at least the next five days. The intravenous administration of serum was practised daily for the first three days only, unless the septicaemic symptoms persisted beyond that time. For two hours prior to each lumbar puncture the head of the bed was raised on blocks to aid in the gravitation of the cerebro-spinal fluid towards the lumbar region and to facilitate the withdrawal of at least 40 c.cm. of the fluid.

Calcium lactate, 10 grains, was given by the mouth thrice daily from the beginning of the treatment to try to prevent serum sickness. Contramine was given intramuscularly in a 0.125 gram dose to those patients with serum rashes; relief followed quickly, but if necessary the dose was repeated after twelve hours.

The above synopsis of treatment is given in the hope that it may be of some service to others, and to awaken constructive criticism. It may be objected that the number of cases treated was insufficient upon which to form an opinion. The number of cases was certainly few, but it should be borne in mind that although various methods of treatment were tried on several of the patients—serum of different brands in small doses, large doses, intravenously, intrathecally, combined, and so on—it was only when saline irrigation was added to the treatment that distinct improvement followed. All those engaged in treating the cases were impressed by the beneficial effects of the irrigation: there was less tendency for the cerebro-spinal fluid to thicken unduly; coma, delirium, and toxaemia disappeared rapidly; and recovery was accelerated. For an example see Case H. W. P. recorded above, also Table III. Of the six patients treated by saline irrigation, four made a safe recovery, or, in other words, the death rate was 33 per cent.; this compares favourably with the death rate of other observers when only cases of fulminating cerebro-spinal fever are considered.

Control of the Disease

General prophylactic measures applicable to the control of diseases spread by droplet infection were adopted as soon as the epidemic nature of the disease was recognized.[6] These measures, as indicated in the beginning of this paper under the headings of history, origin, and spread of the infection, included the search for, and isolation of, contact carriers; special supervision in the spacing of beds and the efficient ventilation of barrack rooms; closure of canteen, cinema, and other places of indoor entertainment; and the disinfection of the nasopharynges of all personnel by means of nasal douches or sprays. The efficacy of this policy was shown by the prompt termination of the epidemic within forty-eight hours of its adoption. The operation of these measures, however,

interfered greatly with the daily work of the personnel concerned, and threw a lot of extra labour on certain departments and individuals; as the need for some of these precautions was problematic, the opportunity was taken to make observations regarding their relative values for future guidance.

The search for and isolation of carriers was extended to include all the recruits and the members of the permanent staff who came into close contact with them. Wholesale swabbing of the nasopharynges of these individuals showed that carriers of the meningococcus were distributed fairly uniformly throughout all the barrack rooms—a fact that could have been prophesied in advance. The percentage of persons carrying was found to be as high as 32 at one time. This was only a relative figure for the technique used, because, with a more perfect technique and more frequent swabbings, probably many more individuals would have been found to harbour some meningococci. The fact remains that the general swabbing helped to detect the more heavily infected carriers, who were potent sources of further infection.

Prompt isolation limited their sphere of action, and this undoubtedly aided in stemming the epidemic. The isolation of all detected carriers was complete; this was considered advisable, for though simple spacing out would have limited their range of activity, the adequate supervision of scattered carriers would have been impracticable.

The spacing out of beds and efficient ventilation of barrack rooms, as normally arranged by the authorities in charge, was adequate, there being 2½ to 3 feet between adjacent beds, so that this was not a likely factor in the spread of the infection. The inter-bed space was increased, however, to 4 feet, and, as a further precaution, the beds in each row were placed alternately head and foot towards the wall. But the problem of preventing local crowding around the fireplaces remained; this was difficult to control without constant supervision.

The canteen and cinema, well-recognized spots for local overcrowding, lived up to their reputation, especially the former. Reference to Chart 2 and the associated text supplies all the information needed on this subject. The canteen was closed on February 12th, and as a temporary measure the salespeople were permitted, at appointed times, to serve the men in the barrack rooms. The closure of the canteen proved a crucial measure in staying the epidemic.

Nasopharyngeal disinfection was applied to all personnel in the infected unit, first of all by means of a spraying chamber, latterly by nasal douching and gargling. Zinc sulphate (1 per cent. solution) was used in conjunction with Levick's steam spray, and the men were exposed to its action for fifteen minutes daily. Nasopharyngeal swabbings taken from a hundred men the day following their sixth spray treatment showed 32 per cent. to be harbouring viable meningococci—the highest carrier rate detected during the epidemic. It was suggested that this proved the efficacy of spraying, for the coryza induced by its action caused lurking germs to be discharged from their lairs in the nasal sinuses. The use of the spray chamber was discontinued, however, partly on account of the length of time necessary to pass all the personnel through it, and in part because of the danger of spreading infection when the men crowded together during the various stages of coming, going, and entering the chamber. Latterly, nasal douching was adopted instead of the spraying. The douching was carried out thrice daily for a fortnight with either a 1 in 5,000 solution of potassium permanganate or an alkaline douche which consisted of sodium bicarbonate and borax, 2 drachms of each, liquid carbolic acid, 1 drachm, sugar, 1/2 ounce, water to one pint. The solution was held in the palm of the hand and sniffed up vigorously. In addition, a chlorine gargle was given according to the following formula: potassium chlorate, 200 grains, hydrochloric acid, 40 minims, to a pint of water. This method of nasopharyngeal disinfection proved simple to administer and efficient as regards its action, as may be judged by the result obtained in the treatment of carriers.

The Treatment of Carriers.—The contact carriers were transferred to special isolation blocks at Halton, where routine treatment was carried out. They were exercised in the open and spaced out as much as possible, and thrice daily for a fortnight they practised nasopharyngeal disinfection by douching and gargling, as indicated above. At the end of a fortnight medication ceased, and nasopharyngeal swabbings were examined for the meningococcus every other day. In any case where meningococci were found to persist, treatment began all over again. Carriers were not pronounced free from infection until six consecutive swabbings proved negative to the meningococcus; 75 per cent. were found to be free from the infection within a month. For fuller details see Table I.

CONCLUSIONS

1. The recent outbreak of cerebro-spinal fever in the Royal Air Force was confined to newly joined recruits, aged between 18 and 23½ years, and appears to have been precipitated by local overcrowding in canteen, cinema, and around barrack room fires.

2. It was not an isolated outbreak, but formed part of an epidemic spread widely over England, and the lessons learned from it can be applied to the problem as it affects the civil community, among which the incidence of this disease has of late years grown to disquieting proportions. It is suggested that the increased patronage throughout the country of cinemas with their continuous performances, cafés in preference to bars, and closed charabancs in lieu of trains play an important part in the dissemination of droplet infections, and may help to explain the increased incidence of cerebro-spinal fever.

3. The control of the disease is chiefly a matter of spacing out, so that special attention should be paid to the number of individuals gathered at one time in canteens, cafés, cinemas, and closed conveyances. The proprietors and public should be suitably warned of the danger of confined atmospheres. Barrack rooms in this country should be centrally heated to ensure efficient warmth and ventilation, without local overcrowding.

4. Nasopharyngeal disinfection by means of simple douching and gargling is efficient, and should be adopted as an additional precautionary measure, especially by those who come in contact with the sick, and by carriers. It should be persisted in for a fortnight after the last exposure to infection.

5. A general nasopharyngeal swabbing of the inmates of an infected barracks is an advisable measure, as it is a rapid method of detecting the more heavily infected and therefore dangerous carriers. Prompt action in this direction, together with adequate spacing out of personnel, should nip in the bud most epidemics of cerebro-spinal fever. Swabbing of the immediate contacts should suffice, if further cases arise.

6. Detected carriers should be isolated to limit their radius of infectivity. They should practise nasopharyngeal disinfection by douching thrice daily for at least a fortnight before swabbings are examined for the meningococcus. No carrier should be liberated unless at least six swabbings, taken on alternate days, are negative to the meningococcus. Alternatively, all carriers might be liberated at the end of six weeks without the examination of nasopharyngeal swabbings, provided they had carried out the nasopharyngeal disinfection daily during that period.

7. Early diagnosis is most important both for the sake of prevention and of cure. Most cases can be diagnosed by careful clinical examination, but a simple total leucocyte count of the blood is of material aid in the differential diagnosis between influenza and the early stages of cerebro-spinal fever.

8. The globulin content of the cerebro-spinal fluid and the position of the meningococci, whether chiefly intracellular or extracellular, are valuable prognostic guides.

9. There is a tendency to regard antimeningococcus serum as a magic cure for cerebro-spinal fever, but, although some batches of the serum have been possessed of remarkable curative powers, others have proved of little therapeutic value. This variability of potency has been noted in many epidemics, and it would appear to be due to difference in the technique of preparing the serum, also to the nature and proportion of the types of meningococci used. Thus, the recent epidemic has been caused by Type I meningococcus, whereas the polyvalent antimeningococcus serum available has been prepared chiefly against Type II of the organism. In addition, the success of the treatment depends greatly on applied physiology. The aim should be to reduce the increased intrathecal pressure to normal limits, to replace as far as practicable the purulent cerebro-spinal fluid by a bland fluid such as normal saline, and to ensure the uniform distribution of antiserum throughout the subarachnoid space. For this purpose about 60 c.cm. of cerebro-spinal fluid should be withdrawn, the subarachnoid space irrigated with 100 to 200 c.cm. of saline, and up to 30 c.cm. of antimeningococcus serum injected intrathecally, once or twice daily, until at least three days after meningococci have disappeared from the cerebro-spinal fluid. This treatment by subarachnoid lavage is not new : it is apt to be ignored, however, possibly because of the extra work entailed ; but this is labour well spent, as those who care to try it will be able to testify.

REFERENCES

[1] Netter, A., and Debré, R.: *La méningite cérébro-spinale*, Paris, 1911.

[2] Flack, M. W.: Report on Cerebro-spinal Fever in the London District. Medical Research Committee, Special Report Series, No. 3, 1917, p. 31.

[3] Horder, T. J.: *Cerebro-spinal Fever*. London, 1915.

[4] Hirsch, D. I.: Irrigation of the Spinal Canal as a Preliminary to Introduction of Flexner's Antimeningococcic Serum, *Journ. Amer. Med. Assoc.*, March, 1913, 828.

[5] Aubertin, C., and Chabanier, H.: Le lavage du canal rachidien dans la méningite cérébro-spinale, *La Presse Méd.*, June, 1915, V, xxiii, 213.

[6] *Manual for Medical Officers of the Royal Air Force*, A.P. 1269, London, 1927, pp. 62 and 66.

SPONDYLITIS DEFORMANS

BY

CHARLES W. BUCKLEY, M.D., M.R.C.P.

PHYSICIAN TO THE DEVONSHIRE HOSPITAL FOR RHEUMATIC DISEASES, BUXTON

(*With Special Plate*)

This paper is based upon a clinical and radiological study of 150 cases of spondylitis of various types treated in the Devonshire Hospital during the last three years. In order to narrow down the scope all cases in which there were no obvious bony changes on *x*-ray examination, in spite of stiffness of the back, have been excluded, as well as cases of osteitis deformans.

The most notable investigations prior to the general use of *x* rays in diagnosis are those of Pierre Marie, Strümpell, and von Bechterew, with whose names certain types of spondylitis have come to be associated. It is, however, worthy of note that Dr. Bernard Connor, writing in the *Philosophical Transactions* in 1700, describes a skeleton displaying the characters of spondylitis ankylopoietica with an exactitude that can hardly be improved upon, and deduces the clinical features of the disease.

"All these bones which naturally are separate and distinct from one another were here so straightly and intimately joyned, their ligaments perfectly bony and their articulations so effaced, they readily made but one uniform and continuous bone, so that it was as easie to break one of the vertebrae in two as to disjoynt or separate it from the other vertebrae or the os sacrum from those of the ilia. The roots of the ribs made but one equal smooth and plain superficies with the vertebrae and their apophyses. . . . The cartilaginous edge of the vertebrae themselves were turned to perfect bone. But when I had sawed two of the vertebrae asunder at the commissure I found that this uniting did not enter above two lines deep . . . their middles were separated as they usually are, and touched each other only at their edge which was raised up a little above the middle part."

It is also clear from other parts of his description and from the illustration he gives that there were no osteophytes, and that the ankylosis was due to ligamentous ossification. Hilton Fagge in 1877[2] described a similar case which came to necropsy, but adds the observation that there was great softening and fragility of the bones (a point of much importance also stressed by Leri[5]), which is a characteristic feature of this form, the "spondylose rhizomelique" of Marie and Strümpell. The type described by von Bechterew differs from that of Strümpell and Marie. Fraenkel[4] contrasts the two types as follows:

Bechterew Type	*Marie-Strümpell Type*
Stiffening of the spine from above downwards, descending.	Stiffening of the spine from below upwards.
The ankylosis results in a very bent attitude; kyphosis is always present.	The ankylosis results in an erect attitude; kyphosis is seldom seen.
Nerve-root symptoms and irritation phenomena are always present.	Nerve manifestations may be missing in some cases.
Joints of the extremities are never involved.	The root joints of the extremities are always, and other small joints often, ankylosed.
Paretic condition of the muscles with slight atrophy.	Atrophy of the musculature is often very pronounced.
Process begins as an infection of the pia spinalis.	Primary process is an ossification of the spine.
Etiology: heredity, trauma, lues.	Etiology: rheumatism and infection.

The first five of these points of difference are not diagnostic, but appear to depend on the degree of severity, on the treatment of the case, and on the site at which the disease begins. The commencement as an affection of the spinal meninges is the essential difference, but much more evidence is required before it is proved that the two types are distinct. I am therefore adopting the classification of spondylitis into two main groups: spondylitis ankylopoietica or ankylosing spondylitis, which includes both the above varieties, and spondylitis osteo-arthritica, the degenerative or hypertrophic form, one of the outstanding features of which was indicated by Sir Samuel Wilks in the name which he gave it—"labourer's spine." To these may be added traumatic, tuberculous, and possibly syphilitic spondylitis.

SPONDYLITIS ANKYLOPOIETICA

As the name implies this is distinguished by its striking tendency to ankylosis of the vertebral and adjoining articulations, the end-result of which is so vividly described by Connor. Of my series sixty were of this type, and the age incidence was as follows:

Below 20	20-30	30-40	40-50	50-60	Over 60
1	17	20	15	5	2

There were six women in the series, which, so far as I am aware, is a higher proportion than has previously been

recorded. This is in marked contrast with the sex incidence of rheumatoid arthritis. The Devonshire Hospital figures for the past three years are 1,137 males and 1,991 females, figures which, while less striking than some of the statistics quoted, demonstrate the much greater susceptibility of the female sex. This marked difference in sex incidence is difficult to explain if the view is accepted that spondylitis ankylopoietica is only a form of infective arthritis in which the spinal articulations rather than those of the extremities happen to be affected. Freund,[5] without giving actual figures for comparison, states that he has seen only one female among the numerous cases he has observed, and can trace only one other in the literature. The latter patient, whom he describes, presented very definite indications of thyroid and ovarian functional deficiency, and developed symptoms a year after an attack of typhoid fever. The six female cases in my series conform closely to the classical types, two showing the von Bechterew characteristics, though not in a pronounced form ; it is therefore desirable to tabulate them for purposes of comparison.

Case	Age	Duration	Symptoms	X-Ray Findings	Cause	Menstruation	General Health
J. C.	25, S.	4 years	Stiffness and pain in back	Osteoporosis; no exostoses; linking of vertebrae	Frequent sore throats	Normal	Good
C. H.	36, M.	5 years	Pain first in left leg, spreading to back; stiffness	Osteoporosis; no exostoses; ankylosis of vertebrae, of sacro-iliac and hip-joints	Probably gonorrhoea	Irregular, excessive; no children	Poor; emaciated weight 5st. 10lb.
L. L.	49, M.	7 years	Began in lumbar region and spread up to neck	Osteoporosis; no exostoses; ankylosis of whole of spine	Probably gonorrhoea	Menopause at 47; no children	Good
E. H.	31, M.	4 years	Pain and stiffness of back	Osteoporosis; no exostoses; ossification of ligaments and early sign in disks	Onset after parturition	One child; no note of uterine functions	Normal
M. P.	38, S.	5 years	Pain began in neck and spread downwards; kyphosis at cervico-dorsal junction	Increased density of bones except sacrum; disks thin; ankylosis of vertebrae, costo-vertebral, sacro-iliac, and hip-joints; no exostoses	Onset after influenza; query syphilis	Normal	Very thin; weight 6st. 3lb.
E. Y.	25, S.	4 years	Head bent forward, due to kyphosis at cervico-dorsal junction; spine rigid	Ankylosis of upper dorsal vertebrae; density normal; no exostoses	Query syphilis; negative Wassermann	Normal	Blood pressure 190 130

ETIOLOGY

No case in this group resembles the one described by Freund, nor is there evidence of any definite endocrine disorder. The first case appears to have been due to infection from the throat ; the second, third, and fourth are probably gonorrhoeal, the four being of the Marie-Strümpell type. The last two resemble the form described by Bechterew in the fact that the disease began in the cervical region and spread downwards, giving rise to kyphosis at the cervico-dorsal junction and to the resulting peculiar carriage of the head. They did not present any symptoms indicative of involvement of the nerve roots ; one showed increased density of bone ; and the other was normal as far down as the sacrum, which appeared rarefied. Syphilis is mentioned as one of the possible causes of this type, and the marked increase of density in the case of M. P. supports this opinion, but no Wassermann test was made ; E. Y. showed a negative reaction to this test, but an abnormally high blood pressure. It is open to doubt whether a single negative result is conclusive, and Schlesinger[6] states that the Wassermann reaction can be positive in the joint fluids when it is negative in the blood.

INJURY AND INFECTION

In diseases of this kind the information supplied by the patient as to the probable cause is never very reliable, and while some sort of history was obtained in forty-five cases, too much importance must not be attached to it. There was a clear history of accident in seven cases (apart from those with definite injury to the spine which have been classed separately); eight others referred the onset to their service during the war. Much importance was formerly attributed to injury as a cause of spondylitis, but this view is now losing ground. Marie and Astie[7] regard injury as having a neurotrophic influence, impaired nutrition of the vertebrae being secondary to concussion of the spinal cord ; but, on the other hand, Poncet and Leriche[8] hold that the effect of the injury is merely to favour infection, and the frequency with which tubercle attacks the spine after accident supports this view. Four patients gave a history of enteric fever ; of these, one had a positive Widal reaction and another, whose reaction was negative, had recently had phlebitis, possibly of typhoid origin. Five gave a history of onset with acute generalized rheumatism or a previous attack of rheumatic fever, though it is possible that some of these may have been cases of gonorrhoeal rheumatism. Ten admitted having had gonorrhoea or showed definite evidence of it, and probably many more had been infected ; but it is difficult to induce patients to be frank on this point. Of the remainder, ten had septic tonsils or pyorrhoea, and several had had their teeth extracted at some date before admission, but after the onset of the symptoms, which suggests that they were infected. I think that all that can be deduced from these figures is that injury or strain and previous attacks of rheumatism are important predisposing causes, and that infection is the actual exciting cause—gonorrhoea, pyorrhoea, or infected tonsils being the most usual. I am not fully convinced that the *Bacillus typhosus* causes typical spondylitis ankylopoietica.

Sedimentation Rate

In twenty-three cases the sedimentation rate varied from 44 to 65, with a mean of 52 at the end of the first hour, compared with the normal of 90 to 95 ; this supports the infective theory, and is in marked contrast to the rate found in nine cases of spondylitis osteo-arthritica which varied from 84 to 94, with a mean of 88.

Symptoms and Radiographic Appearances

On radiographic examination the most striking feature in a large proportion of the cases was osteoporosis of the vertebral bodies and often of the ilia and sacrum ; it was frequently of extreme degree. This is a point of much importance, confirming Fagge's observation of the great softening and fragility of the bones in his case at necropsy, and furnishes an explanation of some of the features of the disease. It is the primary change preceding any alteration in the ligaments, so far as I can judge. The effect varies in the different parts of the column according to the form and degree of the curvature, and also depends on whether the patient has been kept in bed or has mainly been in an erect or sitting posture. If the disease starts in the lumbar region there is pain in the back, and as lying is the most restful posture it is adopted as much as possible, especially in acute cases. Very commonly

there is also pain in the distribution of one or both sciatic nerves due to pressure on the nerve roots as they pass through the spinal foramina ; this is an additional reason for resting. The result is that flattening of the lumbar curve is commonly met with, and kyphosis does not occur.

Ossification

Inflammation of the joints between the articular processes arises early and leads to marked tenderness of the spine on pressure or percussion. Ossification of the capsules of these joints, of the ligamenta subflava, and of the interspinous ligaments, quickly follows, and the spine becomes rigid (Fig. 1). Ossification of the anterior common ligament is not a conspicuous change in this region in man, but is very frequently met with in horses. This has led to undue importance being attached to this change as a feature of the disease: it is simply a reaction to mechanical stress on the weakened bony structures which is obviously present to a great degree in horses in this part of the spine. Ossification of the intervertebral disks is the common change in man, affecting the outer fibrous laminae but not the central portion, which gives rise to an appearance suggesting an extension of the anterior common ligament round the sides of the bodies and its ossification. The bodies themselves tend to become constricted in the middle and spread at the edges with the appearance described by Krebs[9] as " bamboo-like " (Fig. 2) ; but exostoses do not form, and this is a most important diagnostic point. The articular processes become firmly ossified (often also the spinous processes), the bodies are joined together by the ossified disks and ligaments, and the spine becomes a rigid bar (Fig. 3).

When the dorsal region is affected either primarily or by the upward spread of the disease the changes are modified by the difference of the curve ; kyphosis develops early, but is never extreme, the posterior ligamentous structures ossify to meet the strain, and ossification often involves the anterior and posterior common ligaments. The costo-vertebral joints are implicated early and respiration soon becomes entirely abdominal ; intercostal pain is a common symptom ; and the ribs become firmly ossified to the vertebrae.

Lipping of the anterior edge of the bodies often occurs as a result of the pressure, which is naturally greatest on the concave aspect of the curve ; the greater the kyphosis the more marked will be the lipping. The disks become thinned and lenticular in shape, and union soon takes place at the edges of the bodies. When the lower cervical vertebrae are affected the weight of the head causes compression of the bodies, and an extreme degree of kyphosis is apt to develop. To compensate, the head is hyperextended and the bones become ankylosed in this position, characteristic of the Bechterew type (Fig. 4). The atlanto-axial joint often escapes, and thus rotation of the head is retained, but there is usually well-marked thickening and ossification of the anterior common ligament.

Ankylosis

The sacro-iliac joints become completely ankylosed early in the disease if it starts in the lower spine. The hip-joints quickly follow suit, and will be fixed in extension or flexion according to the position usually taken up by the patient. In one of my cases the body from the head to the knees was completely fixed, but there was no bony change in knees or shoulders. Another whose hips were fixed in semi-flexion has recently undergone operation in the hope of restoring their mobility. Although pain and some degree of stiffness may be met with in knees and shoulders, as well as in other peripheral joints, I have not met with the bony ankylosis in these joints recorded by other observers. It would seem as though bony ankylosis occurred only where immobilization was secured by any means and that treatment should be directed to preventing this.

The degree of softening is not so great as that met with in osteitis deformans, and never results in deformity of the kind or extent met with in that disease, though scoliosis may occur as well as kyphosis, and is more common in the lumbar region. It would seem a reasonable hypothesis that the softening of the vertebral bodies and the consequent danger to the vital structures in the spinal canal led to rapid ossification of the ligaments to neutralize this risk.

Freund[5] regards as the primary change a destructive inflammatory process in the joints of the articular processes leading to atrophy and ossification of the cartilage ; Fraenkel[4] also considers the ankylosis of these structures to be primary.

My own observations lead me to think that osteoporosis is earlier than any destructive process in the articulations which can be detected by *x* rays. The appearance of the hip-joints when the disease has spread to them indicates clearly that the cartilage undergoes destructive changes early ; later there is often slight mushrooming of the head of the femur, but not to anything like the same degree as in osteo-arthritis of these joints.

Progress of the Disease

The rate of progress of the disease varies widely. In some cases the onset is acute and the progress rapid, so that the whole spine becomes rigid within a few months. In others the rate is much slower, and may be arrested when only a portion of the spine has been affected. Sometimes the onset is so insidious that the patient does not seek advice until there is extensive damage. The earliest symptoms are commonly those of lumbago and sciatica, and may be of no great severity. It is not uncommon to meet with a history of such symptoms followed by remission and recurrence after a few months, this happening two or three times before the nature of the disease is recognized. Spondylitis ankylopoietica may supervene upon other diseases of the spinal column and cause difficulty in diagnosis. This sometimes occurs when the degenerative changes of " labourer's spine " have already set in ; in this way mixed cases arise.

The small joints of the limbs are not often affected. There were five cases in the series which showed arthritis of the hands, wrists, or ankles, but in these there was no difference in the appearance of the spine. One in fact furnished the best radiogram of ossification of the anterior spinal ligament in the dorsal region. In this patient the symptoms in the back appeared eight years before I saw him, and the knees and ankles had become affected much more recently ; he had been able to continue his work as a post-office sorter throughout. Since gonorrhoea and other causes of infective arthritis may set up either a spondylitis or an arthritis of the rheumatoid type, it would not be remarkable if both conditions occurred together. It is surprising that this is so rarely the case. On the whole I think that the balance of evidence is in favour of the view that the pathological basis is different in the two conditions, but that both may occur in the same individual. It is, however, extremely probable that further study may reveal features by which the cases I have grouped together under the general term spondylitis ankylopoietica may be divided into two or more subclasses. To attempt to do so at present would lead to confusion.

SPONDYLITIS OSTEO-ARTHRITICA

This disease is described by some writers as spondylosis deformans to emphasize its essentially degenerative character, but the ankylopoietic form is productive of greater deformity. The term osteo-arthritica, though

cumbersome, has the advantage of clearly defining the condition, which is of the same nature as osteo-arthritis of other joints. There were 61 patients of this type in the series, of whom only two were women. The age incidence was: 40 to 50 in 13 cases ; 50 to 60 in 34 cases ; and 60 to 70 in 14 cases.

Etiology

The most important factor in its production appears to be the strain and wear and tear of heavy labour. Of the 61 patients, 31 were coal miners, and a majority of the others were engaged in similar laborious work. I believe that if any substantial number of men over 50 engaged in such work were submitted to *x*-ray examination, a large proportion (probably not less than 50 per cent.) would show signs of spinal osteo-arthritis without having had any notable symptoms. My cases presented all grades, from slight lipping of the bodies of the vertebrae to the formation of very large exostoses which, in some, became joined to form bridges between adjacent vertebrae —a form of union which is quite different from that occurring in spondylitis ankylopoietica.

Symptoms

Frequently the patient says that the onset of pain and stiffness of the back has been quite sudden, whereas the radiograph reveals exotoses which must have been many months or years in process of formation. In reality the back has gradually been getting stiffer until some effort, no greater than has previously been borne with impunity, gives rise to pain of a more or less disabling character, and the patient seeks treatment. After a short rest he attempts to work again, with the same result ; and he is forced to give up his usual occupation and seek something lighter, often without success. On the other hand, he may attribute his disability entirely to the sudden strain which brought it to light, and become a claimant for compensation ; it is thus a matter of much medico-legal importance to recognize the sequence of events.

It is to be noted that spondylitis osteo-arthritica is not a seriously crippling disease, and the degree of flexibility of the spine which is retained is often remarkable. Some flattening of the lumbar curve is usual, and there may be kyphosis of the dorsal region which is not due to the spondylitis directly, but has gradually developed as a result of habitual posture, usually occupational, and become fixed by the bony changes. Pain is not a marked feature, except from strain or over-use, and may be entirely absent ; but, on the other hand, it may be severe if the exostoses press upon the nerve trunks at their emergence from the column or at any point in their course, and it may then be referred to the extremities (Fig. 5).

The primary change is probably in the intervertebral disks, which, as a result of long-continued strain upon their buffering function, aided it may be by toxic or infective influences, undergo degeneration or partial atrophy just as does the cartilage of other joints in similar circumstances, of which the best example is the hip in malum coxae senile. As a result, exostoses are thrown out to support the weakened articulation. Local trauma (especially if frequently repeated, even though only slight) tends to marked local development of such changes. A striking example of this occurred in one of my cases which presented a slight kyphosis of the lumbar spine and exostoses of the second and third lumbar bodies. On inquiry, the patient, an intelligent man, volunteered the suggestion that it might be due to having to walk more than a mile from the bottom of the pit in which he worked along a seam too low for him to stand upright in order to reach his working place. In doing so he often bruised his back against the roof in just the position in which the changes were observed. A strain or injury may affect one side more than the other, or the habitual working posture may give rise to changes greater on one side, with a resulting scoliosis. Very large curved exostoses may be developed in this way.

Effect of Syphilis

It appears to me, however, that some additional factor, toxic or infective, is required to produce the more extreme examples. Syphilis is probably one of the most important of such influences, and may be suspected if the increase of density is very marked locally or generally ; clear areas possibly due to gummata are also seen in the radiograms in some cases. A negative Wassermann reaction does not absolutely exclude syphilis ; but on the other hand one meets with cases in which the Wassermann reaction is positive, but which do not show any changes in the vertebrae differing from those in the general run of cases. A curious chalky appearance is sometimes seen in the negative, which cannot be demonstrated in a print. The excessive and irregular osteophytic development is sometimes suggestive of Charcot's arthropathy. There were nine cases in the series in which there were changes suggestive of syphilis, but in only one was the Wassermann test positive, though it was not tried in all. In one there was a history of a chancre, another had signs of neurosyphilis, and the others showed advanced arterial degeneration. The evidence is not sound enough on which to base any description of a syphilitic spondylitis. The question of osteitis deformans was considered in some cases, but it was excluded by means of the phosphoric esterase test.

Other Types of Spondylitis

Healed or quiescent tuberculosis of the vertebrae may present an appearance which it is easy to confuse with other forms of spondylitis. It is not uncommon for several vertebrae to be affected and to present an appearance resembling the osteo-arthritic form. Jones and Levett[10] lay stress upon the perivertebral shadow seen in antero-posterior views ; but in old cases this may be absent or difficult to identify. They also point out that an irregularity of the anterior edge or corner of the bodies as seen in a profile radiogram is characteristic (Fig. 6) ; this was readily demonstrated in some cases in this series. The intervertebral disks undergo rapid disintegration and disappear, leaving the eroded surfaces of the bodies in contact ; fusion frequently takes place. In the lumbar region especially there may be an osteoplastic periostitis linking the bodies together, which may in turn be invaded by the disease.

Kümmell's Disease

Kümmell in 1895 described a condition to which he gave the name spondylitis traumatica. In this, after an injury to the back which appears to be quickly recovered from, the symptoms of pain and stiffness reappear and a slight kyphosis develops. This is due to the breaking down of the cancellous tissue of the body of the injured vertebra, which is crushed and becomes wedge-shaped. Its early recognition is important, to prevent the damage from increasing. There were two cases of this condition in my series, in addition to simple crush fractures and fractured transverse processes, both of which may closely simulate spondylitis clinically, since rigidity, pain, and tenderness are prominent symptoms ; but they are readily diagnosed in a radiogram. Malignant disease may occasionally give rise to difficulty, but, since it is usually secondary, attention to the history should serve to prevent mistakes. The condition may resemble tuberculous disease very closely. There were two cases of this kind in the series, and in one the secondary growth had developed in the presence of typical spondylitis osteo-arthritica.

NOTE ON TREATMENT

The question of treatment is outside the scope of the present paper, and would take up too much space. The essential point is to recognize the ankylopoietic form as early as possible and to deal with any focus of infection, to take steps to prevent the development of kyphosis, ankylosis of the hips, etc., by rest, supports, or by other methods, and to pay special attention to the defective calcium metabolism by correcting vitamin deficiency and other disorders of nutrition. Freund recommends treatment at a spa, preferring Gastein, a spa of a type well represented in this country.

I wish to express my thanks to my colleagues on the staff of the Devonshire Hospital for permission to make use of some of their cases, to Mr. J. Race of the research department for much help in translating references in German literature, and to Mr. Gibson, the radiographer, for his excellent illustrations.

REFERENCES

1 Connor: Quoted by Llewellyn Jones, *Arthritis Deformans*, 1909.
2 Fagge: *Trans. Path. Soc.*, 1877.
3 Leri: *Nouvelle Iconographie de la Salpêtrière*, 1906.
4 Fraenkel: *Deut. Klinik*, xi. Quoted by Freund: *Gelenkerkrankungen*.
5 Freund: *Gelenkerkrankungen*, 1929.
6 Schlesinger: Quoted by Fischer, Report of the Research Institute for Rheumatism, Aachen.
7 Marie and Astie: *La Presse Médicale*, 1897.
8 Poncet and Leriche: Quoted by Llewellyn Jones, loc. cit.
9 Krebs: *Deut. med. Woch.*, 1930, Nos. 6 and 7.
10 Jones and Levett: *Orthopedic Surgery*, 1923.

TWO CASES OF SYPHILITIC SPONDYLITIS

BY

CHRISTINE ABERNETHY, M.B., CH.B.

ASSISTANT RESIDENT MEDICAL OFFICER, FAZAKERLEY SANATORIUM, LIVERPOOL

Syphilitic spondylitis is an uncommon lesion according to the literature, and, for this reason, two such cases admitted to Fazakerley Sanatorium seem worthy of record.

CASE I

Male, aged 36, gave a history of "rheumatism" of ten years' duration affecting his arms and shoulders, and improving and relapsing at intervals. Twelve months before admission he was crushed between heavy gates, and he attributed the subsequent pain in the chest wall, shoulders, and neck to this accident. Rest and local treatment did not relieve his symptoms. He was *x*-rayed, and was found to have a destructive lesion in the cervical vertebrae. He was diagnosed as a case of tuberculosis of the spine, and was accordingly admitted to this sanatorium. On admission (December, 1927), temperature and pulse were normal. The patient complained of pains in the neck and shoulders. For the previous three or four days he had had difficulty in swallowing. He also showed a slight degree of dyspnoea. These symptoms could be accounted for by a bulging of the pharyngeal wall, which did not feel like an abscess. The subsequent *x*-ray picture proved that the atlas was dislocated forward on the axis and that the first three cervical vertebrae were carious.

Fixation on a double abduction frame with head extension gave only temporary relief. Pain became localized in the right arm. Two months after admission, a bony swelling appeared in the lower third of the humerus, which the radiologist diagnosed as a non-tuberculous lesion and most suggestive of a syphilitic infection. This diagnosis was confirmed by a positive Wassermann reaction. Administration of neokharsivan brought about an uninterrupted recovery in the spinal condition, which proved to be soundly healed twelve months after admission. In spite of treatment, however, a pathological fracture occurred through the gumma in the humerus four months after the onset of symptoms, and this failed to unite.

The patient was sufficiently well to be discharged in February, 1929 (fourteen months after admission), and to continue treatment outside.

CASE II

Male, aged 41, also gave a history of rheumatism over a period of at least ten years. For eighteen months before admission, abscesses had appeared over the sternum and in the region of the parietal bones. These had broken down, but scars proved that some of the lesions had healed spontaneously. On admission (February, 1928), there were several discharging sinuses over the sternum and the skull. Temperature was 100° to 97°, pulse rate 96 to 76. The multiple character of his lesions and the history suggested examination of the blood, which gave a positive Wassermann reaction.

About three weeks after admission, the patient complained of pain and stiffness in the neck. As this did not yield to ordinary treatment he was *x*-rayed. This time it was found that the body of the third cervical vertebra showed early destruction.

The patient rapidly improved under administration of neokharsivan, in addition to the application of a surgical support. Radiologically, the lesion was soundly healed at the end of nine months, and in September, 1928, he was discharged to attend hospital as an out-patient.

Interesting points are as follows:

1. The diagnosis in the first case was dependent on the *x*-ray findings.

2. The situation of the lesion in both cases was in the cervical spine.

3. Abscess formation frequently accompanies a tuberculous lesion, but is not typical of syphilitic caries. In this first case the suggestive retropharyngeal swelling was due to dislocation.

4. In both cases the Wassermann reaction was strongly positive, and was still positive, despite treatment, when the patients were discharged.

Of the few cases reported in this country, the earliest was a case of exfoliation of the atlas, described by Keate in 1835. Wade,[1] in 1849, recorded another case of cervical caries. Evans and Marshall[2] published a case in 1920. From the literature, Ziesche[3] collected eighty-eight cases, and found that in 75 per cent. of these the lesion was situated in the cervical spine.

I am indebted to Dr. C. Rundle, medical superintendent of Fazakerley Sanatorium, for his kindness in permitting me to publish these cases, and also to Mr. J. T. Morrison, visiting surgeon to the sanatorium.

REFERENCES

1 Wade: *Med. and Chir. Trans.*, 1849, xlii, 65.
2 Evans and Marshall: *Lancet*, 1920, i, 656.
3 Ziesche: *Über die Syph. Wirbelentzündung Mitt Grezgeb. d. Med. und Chir.*, 1909, xii, 35.

A CASE OF PULMONARY ASBESTOSIS

BY

H. E. SEILER, M.D., D.P.H.

DIVISIONAL MEDICAL OFFICER OF HEALTH, PUBLIC HEALTH DEPARTMENT, GLASGOW

AND

MARY D. GILMOUR, M.A., M.B., CH.B.

ASSISTANT PATHOLOGIST, PUBLIC HEALTH DEPARTMENT, GLASGOW

(With Special Plate)

The problem of the production of industrial fibrosis of the lungs by the silicate dusts, and notably asbestos, has, because of its evident importance, received increasing attention during the past few years. It is felt, therefore, that some further notes on the after-history of one of the earliest reported cases of pulmonary asbestosis may be of interest. This case, reported by one of us in the *British Medical Journal*,[1] was the first in which the relationship between the inhalation of asbestos dust and fibrosis of the lung could be satisfactorily established: the essential factors being—exposure to asbestos

dust, the presence of a definite pulmonary fibrosis demonstrated clinically and radiologically, and the absence of a history of previous infection, or of exposure to other dusts known to cause pulmonary fibrosis. Two other cases, the "Montague Murray" case[2] in 1906 and "Cooke's" case[3] in 1924, had been previously described; and, in addition, Simson[4] had reported fibrosis in workers employed in crushing asbestos rock as apart from those employed in the manufacturing processes. In most of these cases, however, the fibrosis had been associated with either a pulmonary tuberculosis or an unresolved pneumonia, and it was doubtful whether asbestos dust could of itself produce a disabling fibrosis. Since the publication of these cases, the recent extensive and exhaustive researches on this subject by Dr. E. R. A. Merewether[5] have definitely established the existence of pulmonary asbestosis as a clinical entity, and have amplified our knowledge of the clinical characteristics of the disease and its distinction from silicosis. So far, however, little information about the pathological findings in cases uncomplicated by pulmonary tuberculosis or other gross changes has been obtained. Wood and Page[6] have published the details of one such case, and two others are quoted by Merewether, together with the detailed examination of a few cases by M. J. Stewart.

The patient who is the subject of these notes has died, and the fact that pathological examination showed that death was due solely to cardiac failure secondary to back pressure resulting from the massive generalized fibrosis and irrespective of any added infection is an additional point of interest in his case.

Clinical Notes

The patient, a man aged 42, had been associated with the asbestos industry since boyhood. The total period of employment in the asbestos industry was 24½ years, for 23¼ years of which he was definitely exposed to the inhalation of asbestos dust. He had worked four and a half years in the cardroom, seven and a half years as a dry cloth weaver, and for the remainder of the time in the manufacture of millboard. The last-named is not in itself a dusty process, but exposure to dust from other processes was experienced for most of the time. It is probable that the foundations of his fibrosis were laid in the course of his work in the former two processes, which were definitely dusty, and that work in the millboard section had little effect.

As previously reported, he came under observation for the first time in February, 1928, as a suspected case of pulmonary tuberculosis. He complained of cough, breathlessness, loss of weight, and lassitude extending over a period of several months. Clinical examination at that time, however, did not suggest a diagnosis of pulmonary tuberculosis, and the association of the illness with his occupation was strongly suspected. The physical signs in the chest were those of a widespread fibrosis of both lungs and bronchitis; radiographic examination revealed a diffuse fine mottling of a silicotic nature spread throughout both lungs. The results of these examinations, together with the absence of a history of previous illness likely to produce a pulmonary fibrosis in a man who had not been exposed to other dusts, pointed definitely to a pulmonary fibrosis resulting from the inhalation of asbestos dust.

The patient was admitted for institutional treatment on March 27th, 1928, and he improved to such a degree that five months later it was possible to discharge him. He had gained weight, only a slight degree of cyanosis was present, and dyspnoea and cough were much less marked. Following his discharge from hospital, he was absent from work for a further period of nine months. However, he remained well, and was able to return to the asbestos factory and work as a supervisor of a practically non-dusty process. He continued at this work for twenty months, until December 3rd, 1930. For a few months before this date his general condition had again deteriorated, and he complained of increasing breathlessness and an exhausting cough. At the beginning of December, 1930, he noticed swelling of the ankles, and a week later his condition became so serious that he was removed to hospital.

His condition was now much worse; he was thin, with an anxious appearance, extremely cyanotic, and his breathing was very distressed. There was marked clubbing of fingers, and oedema of the lower limbs extending up to the thigh. The pulse was regular, rapid, and of low tension. The temperature was subnormal, and remained so during the illness. The cardiac dullness was definitely increased, and the heart sounds muffled with a soft systolic murmur at the apex. The percussion note was impaired over the whole of both lungs, varying in intensity, complete dullness being noted at the left base. On auscultation, moist rales and crepitations obscured any finer changes in the respiratory murmur. In spite of treatment, no improvement occurred on this occasion, and he died on December 30th, fourteen days after admission.

Pathological Findings

At necropsy generalized anasarca was present. Face, neck, and shoulders were deeply cyanosed, and the conjunctivae were injected.

The right pleural cavity was obliterated by extremely dense fibrous adhesions, the whole of the right lung being invested with a greatly thickened membrane. The left pleural cavity contained a massive serous effusion. No adhesions were present on this side, but the visceral pleura showed irregular patchy fibrosis. Both lungs were very firm on palpation, and on section the lung tissue was remarkably tough and airless. All lobes were affected, so that there appeared to be no spongy lung substance left. The cut surfaces presented a curiously uniform, dense, fibrous appearance, dark grey with deep red mottling—the latter colour due to chronic venous congestion. A great increase in the connective tissue of the interlobar septa and deep layers of pleurae was present. The right lung, which was bulkier and tougher than the left, was obviously in a more advanced stage of the disease. Some large emphysematous bullae were present along the anterior border of the left lung. There was no evidence of any tuberculous process. The bronchi were not notably dilated; large glands, deep black in colour, were present at the roots. The heart and other organs showed all the signs of advanced cardiac failure. Hydropericardium was present. There was marked hypertrophy and dilatation of the right ventricle, with engorgement of the venous circulation, as evidenced by the condition of the viscera. The liver showed the typical nutmeg appearance of chronic venous congestion. Ascites was present. The spleen and kidneys had the hard consistence and purple colour of cyanotic induration.

Histological Examination

Sections from all lobes of both lungs were examined; and two outstanding changes were noted: first, a diffuse fibrosis; secondly, the presence of golden-yellow bodies.

Every structure in the lung was affected by the fibrosis. The alveolar epithelium showed reversion to the cubical embryonic type, and in parts was replaced by adult fibrous tissue. There was fibrosis of the walls of bronchi and vessels, many of the latter being the seat of thrombosis and endarteritis obliterans. In situations where fibrous tissue is naturally abundant, as in the septa and the deeper layers of the pleurae, the fibrosis was extreme, and consisted of very dense collagenous bundles, in some of which there was a deposit of lime salts. Collections of lymphocytic cells were scattered irregularly throughout, often in relation to new blood vessels in the fibrous tissue. Unlike the distribution of the fibrosis in silicosis, there were no fibrous nodules or whorls. Side by side with the fibrosis, emphysematous areas were occasionally seen with accompanying chronic venous congestive changes. A desquamative condition of the lining of the bronchi and bronchioles accompanied the fibrosis in their

walls, filling the lumina with epithelial and round connective-tissue cells. The absence of polymorphonuclear cells in bronchi or elsewhere was a conspicuous feature. No evidence whatever of a tuberculous lesion was found, or of acute pneumonic consolidation.

Asbestosis Bodies

The curious asbestosis bodies, so prominent a feature in cases already described by Cooke,[7] Simson,[4] Stewart,[8] and Lynch and Smith,[9] were abundantly present in all areas of both lungs. The bodies were generally golden-yellow in colour, and of great variety of shape and size. Many showed core, thought to be asbestos fibre, running down the centre of the body (Fig. 1) ; and in a few places the bare, translucent fibre itself was seen, with yellow deposit confined to the ends. Usually, however, the fibre was uniformly coated or encrusted with the yellow deposit (Fig. 2). The deposit gave the prussian-blue reaction for iron. The probable mode of formation of these bodies has been described in detail by McDonald.[7] In addition to the bodies, much yellow pigment in the form of granules and globular masses was seen (Fig. 2). All were to be found lying free or phagocytosed inside air vesicles and bronchioles, and embedded in the alveolar walls, or in the interstitial connective tissues (Fig. 1). Much of the finer dust was found within the endothelial cells of blood vessels, and in the peribronchial lymphatic glands. A few of the smaller bodies were also seen inside the lymphatic glands. A large amount of black carbon pigment was present throughout the tissues. Frequently both yellow and black pigments were phagocytosed within the same cell.

The photomicrographs are by Mr. Boot, Public Health Department, Glasgow.

REFERENCES

1. Seiler, H. E.: *British Medical Journal*, 1928, ii, 982.
2. Departmental Committee on Compensation for Industrial Diseases, Minutes of Evidence, Appendices, and Index: 1907, Cd. 3496, 127 ; Report, 1907, Cd. 3495, 14.
3. Cooke, W. E.: *British Medical Journal*, 1924, ii, 147.
4. Simson, F. W.: Ibid., 1928, i, 885.
5. Merewether, E. R. A.: *Journ. Indust. Hyg.*, 1930, xii, 198.
6. Wood, W. B., and Page, D. S.: *Tubercle*, 1929, x, 457.
7. Cooke, W. E. ; McDonald, Stuart ; and Oliver, Sir T.: *British Medical Journal*, 1927, ii, 1024.
8. Stewart, M. J., and Haddow, A. C.: *Journ. Path. and Bact.*, 1929, xxxii, 172.
9. Lynch, K. M., and Smith, W. A.: *Journ. Amer. Med. Assoc.*, 1930, ii, 659.

ROUTINE RADIOGRAMS FOR INVESTIGATION OF INTESTINAL OBSTRUCTION

BY

E. T. C. MILLIGAN, M.D., F.R.C.S.

AND

GEORGE SIMON, M.B., D.M.R.E.

CHIEF ASSISTANT, X-RAY DEPARTMENT, ST. BARTHOLOMEW'S HOSPITAL

(With Special Plate)

Localization of the site of intestinal obstruction before operation for its relief facilitates the surgeon's task, and so is of incalculable advantage to the patient.

Opaque meal and enema given for *x*-ray investigations in these cases are not infrequently a source of peril, precipitating complete obstruction where partial obstruction already exists, and, apparently, subjecting all cases of abdominal section to the risks of post-operative paralytic ileus if time, which can often be ill spared, is not taken to clear the alimentary tract of residual barium. Furthermore, delay in operative treatment for the necessary *x*-ray examination and emptying of the bowel is frequently detrimental to the patient's interest ; indeed, in some cases where urgent symptoms are present, evacuating methods must be abandoned, although harmful barium still lies in the bowel.

Discussions and writings on such topics as blind caecostomy and methods of search for the site of obstruction at operation are tacit admissions of inability, in many cases, to localize the site of obstruction by clinical methods until surgical exploration is performed. Enlightenment in this difficult matter of localization would therefore be acceptable, since a feeling of assurance would be inspired and a convenient abdominal wound might be substituted for an unsatisfactory exploratory incision. Instances are not wanting where, after a difficult, dangerous, and fruitless search (through an ill-planned incision) among greatly distended intestines, a colostomy or caecostomy has been performed, and the site of obstruction revealed only by subsequent *x*-ray investigation with opaque materials, or by further operation of an exploratory nature.

Invaluable information in cases of intestinal obstruction, paralytic and organic, in the small or large gut, is obtained by a routine simple radiogram of the distended abdomen before operation, without the aid of opaque substances (barium enema or meal), and without preparation of any kind. Imprisoned gases outline with striking definition the position, size, and extent of the distended bowel on an *x*-ray film, the distended large gut being readily distinguished from the small intestine. The gas-filled caecum stands out prominently and characteristically. The site of obstruction in large bowel is marked by an abrupt ending of the gas-distended bowel. The contracted bowel, empty of gas, below the obstruction is not apparent on the film, thus lending striking definition to the place of obstruction.

The limitations and applications of this somewhat neglected and unfamiliar method will soon be learned by the surgeon who checks and confirms the *x*-ray interpretations by his operative findings. We have found that routine pre-operative *x*-ray investigation has given invaluable diagnostic aid in cases of small intestine obstruction, paralytic ileus, and large intestine obstruction ; and often reveals, what is so important to the surgeon, the site of obstruction.

X-RAY TECHNIQUE

The examination should be carried out as soon as the patient reaches the department, and must be conducted rapidly, with as little disturbance as possible. A single posterior view of the abdomen is usually sufficient. Owing to the gaseous distension large films (17 by 14 inches) should be used if available, or important distended coils may be missed. Alternatively, two exposures at different levels on smaller films (15 by 12 inches), placed horizontally, may be employed. The Potter-Bucky diaphragm is essential, and very gentle compression helps to steady the parts. A soft ray, produced by not more than 75 K.V.P., will bring out the translucent gas areas to the best advantage, while a sufficient milliamperage should be used to enable the exposure to be made in less than four seconds, as the patient is usually too ill to hold the breath longer.

Six illustrative radiograms with explanatory notes are reproduced on the Special Plate. It should be noted that Fig. 3 has been turned through a right angle.

We acknowledge our great indebtedness to the radiological departments of the Croydon General Hospital, St. Mark's Hospital, the Weir Hospital, and the Woolwich War Memorial Hospital for their ready co-operation in the immediate radiographic investigation, often at inconvenient hours, of cases of intestinal obstruction on which this article is based.

A CASE OF ACUTE BRONCHIOLECTASIS

BY

H. HILTON STEWART, M.D., M.R.C.P.

ASSISTANT PHYSICIAN, ULSTER HOSPITAL FOR CHILDREN

AND

J. H. BIGGART, M.B., B.CH.

BELFAST

(With Special Plate)

In view of the rarity of this condition the following case seemed worthy of report.

CLINICAL HISTORY

A female child, aged 3 months, was admitted to the Ulster Hospital for Children, Belfast, with a history of cough for a few days, associated with great difficulty in breathing. On examination the child was pale, the alae nasi were working, and a hard cough was frequent. The temperature was 99°, pulse rate 160, and respiration rate 60. There was some dullness at the base of the right lung. Bronchial breathing was present over both lungs, and there were numerous scattered rhonchi. A diagnosis of broncho-pneumonia was made, and the subsequent course of the disease seemed to confirm this. The temperature varied from 100° to 101°, pulse rate between 140 and 160, and respiration rate between 40 and 50. At the end of one week the temperature fell to 99°, and pulse and respiration rates fell proportionately. There was some clinical improvement in the child, but she remained very pale, and in a few days began to get worse, with some increase in dullness at the right base. An *x*-ray photograph of the chest was taken. This showed general consolidation of the right lung, and also some consolidation at the left apex. Fourteen days after admission the temperature rose to 103° and pulse rate to 148. On the morning of the sixteenth day the patient died.

POST-MORTEM FINDINGS

Both lungs were swollen and oedematous. At the left apex and along the lower border of the right middle lobe were many small yellowish areas, each about the size of a small pea. On section the left apex was seen to be riddled with cavities and abscesses. The yellowish areas were small abscesses. The remaining lung tissue showed the presence of a broncho-pneumonia. The right lung also showed the presence of abscesses in the middle and lower lobes.

Microscopically an extensive broncho-pneumonia and bronchiolitis were present. The cavities and abscesses were found to be dilated bronchioles. Many of the abscesses were definitely formed by dilatation of a terminal bronchiole and of its infundibulum. The lung tissue surrounding the dilated bronchioles showed inflammatory consolidation and partial collapse. The bronchi were congested. Gram's stain showed the presence of large numbers of staphylococci in the abscess cavities. No other organism was found.

The liver, kidneys, and spleen showed well-marked toxic changes. No sputum was available for a more complete bacteriological investigation.

COMMENTARY

Clinically it would seem impossible to make a differential diagnosis between this condition and broncho-pneumonia. This is also the opinion of Ewart.[1]

The pathogenesis of the disease is difficult to elucidate. The comparative rarity of bronchiolectasis makes it impossible to believe that it is compensatory in origin. Furthermore, dilatation of the bronchi and bronchioles is more apt to occur in a pneumonic lung while resolution is taking place rather than while the consolidated lung affords support to their walls. In this case, however, it is worthy of note that a certain amount of collapse accompanied the consolidation. It may then be possible to find an explanation for the bronchiolectasis in (1) an inflammatory softening of the wall; (2) an infection by the staphylococcus causing well-marked local destructive changes; (3) the presence of a certain degree of peribronchiolitic collapse. The infection is evidently primarily a bronchiolitis with subsequent broncho-pneumonic changes.

The case is interesting, in so far as it shows the condition to be relatively localized, and not general as in the cases reported by Sharkey.[2]

REFERENCES

[1] Ewart: Allbutt and Rolleston's *System of Medicine*, vol. v.
[2] Sharkey: *St. Thomas's Hospital Reports*, 1892, xxii, 33.

Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

TREATMENT OF HAY FEVER BY INTRANASAL ZINC IONIZATION

The problem of hay fever has been studied from many angles. Of recent years specific and non-specific desensitization has yielded only moderate results. The uniformly successful cures that I have obtained with the method described below encourages me to place on record the technique I have adopted during the last six years.

The treatment consists of intranasal zinc ionization. Cases of hay fever have been successfully treated before and during an attack, as well as those of vasomotor rhinitis—that is, cases showing manifestations of hay fever throughout the year. The majority of cases require two treatments, with an interval of seven days. The number of treatments depends on the success of the intranasal impregnation with zinc. In some cases one treatment has sufficed. The intranasal mucosa is covered with thin layers of cotton-wool soaked in a 1 per cent. solution of zinc sulphate in distilled water. Particular care should be taken to cover the middle turbinate and the adjacent septal mucous membrane. A zinc terminal is placed in each nostril and connected with the positive pole of a galvanic battery. The indifferent electrode is applied to the forearm or hand. A current of three to five milliamperes is passed for fifteen to twenty minutes. A simple apparatus for applying the terminals to the nose has been devised by me, as shown in the illustration. Should the treatment be commenced at the outset of an attack when the tissues are swollen and irritable, it is advisable to spray a 4 per cent. solution of cocaine into the nose before applying the wool. Careful application is necessary to avoid any abrasion of the tissues. Undue injury may give rise to epistaxis. A metallic taste and an increased salivation is experienced when the ionizing process begins; a conjunctival hyperaemia, with lacrymations and blushing, is noticed as the treatment continues. On removal of the packing the tissues are contracted, and the turbinal and septal mucosa are covered

with a white coating which persists for several days. The treatment is not followed by any untoward symptom, although attacks of sneezing may occur during the subsequent twenty-four hours. The nasal tissues, however, remain definitely shrunken. The twenty-five patients treated by this method include three with vasomotor rhinitis and twenty-two with seasonal hay fever. All the latter had suffered annual attacks, and between them had tried every known method of treatment. The ages ranged between 19 and 39, excepting two children aged 10 and 14, and one medical man, aged 57. In the latter case a septal deflection had to be corrected to enable the nose to be packed. Three patients treated in 1925, one in 1927, and one in 1929, have been free from attacks and required no further treatment. Unfortunately the result is not always permanent, and although the patient may be free during the subsequent hay fever season, the attack may recur the following year.

Miss M. W., aged 20, had annual attacks for eight years. First treated by ionization in 1929; no further symptoms. In 1930, no treatment; severe hay fever. In 1931, started an attack on May 20th, treated by ionization followed by immediate cessation of the attack, with no recurrence to date.

None of the patients has had attacks during the season following treatment, so that their subsequent course calls for no comment.

The apparatus illustrated was made and supplied by Messrs. Theodore Hamblin, Ltd., 15, Wigmore Street, W.1.

PHILIP FRANKLIN, F.R.C.S.,
Laryngologist, Italian Hospital, Infants Hospital, etc.

Reports of Societies

RECENT ADVANCES IN CHEMISTRY OF THE VITAMINS

DISCUSSION AT THE ROYAL SOCIETY

The Royal Society took advantage of the presence in London of a number of distinguished investigators in the field of vitamin research to hold a meeting on June 18th for a discussion on recent advances in the chemistry of vitamins.

Sir F. G. HOPKINS, President of the Society, said that in the room in which they were assembled the scientific work of successive generations of investigators had been reviewed for the first time, and of late years discussions had taken place there which had illustrated many new aspects of science; but of the progressive and very important branch in which those gathered on that occasion were specially interested very little had been heard in the Royal Society, and only two or three papers on vitamins had been communicated. It was time, therefore, for a discussion on this subject, and he felt a personal satisfaction that it should take place during the first year of his presidency. It was the chemistry of vitamins, rather than their physiological aspects, which would be reviewed, and since his own contribution to chemistry was negligible he did not propose to open the discussion from the chair, but only to suggest the general lines on which it might take place. It seemed to him that attention might well be given to three vitamins—namely, D, A, and B, and in that order—though with regard to B he felt a certain anxiety as to what the discussion might reveal—whether another B might not join the "hive" at any moment. With regard to vitamin D, recent years had seen an extraordinary convergence of various lines of work in the endeavour to reach a real understanding of the nature of this important agent.

Vitamin D

Professor A. WINDAUS (Göttingen) presented an account of his work on the chemistry of irradiated ergosterol. Since it became known that ergosterol on irradiation with ultra-violet rays was converted into an antirachitic substance of high activity, the study of the most favourable conditions for this photochemical process had continued. Attempts had been made to prepare the substance in a crystalline condition, but so long as success in its purification had not been attained the investigations had to be carried out with the crude irradiation product, the vitamin content of which was unknown. In the process of irradiation no state of equilibrium between ergosterol and its irradiation products was attained. If the irradiation was continued for a sufficiently long time the ergosterol disappeared completely, and there took place a conversion into over-irradiated products, of which two had been obtained in crystalline form. Vitamin D was only an intermediate product of the chemical transformations of ergosterol, and so it was sensitive to irradiation with ultra-violet rays. The two products of over-irradiation just mentioned were end-products of the chemical transformation, and neither could be converted into the other. During the ultra-violet irradiation of ergosterol it appeared possible that several substances were formed simultaneously, but in his view it was not permissible to draw such far-reaching conclusions as some had ventured. It appeared very probable, though on the evidence not absolutely certain, that the vitamin obtained contained three double bonds, as did ergosterol itself. It had been proved that the crude irradiation product lost its antirachitic action when treated with sodium and alcohol. There was no doubt that vitamin D contained a system of conjugate double bonds, and that in this respect it was very similar to ergosterol. On the other hand, the vitamin was much more sensitive to the action of high temperatures. The question whether vitamin D could be preserved unchanged in the absence of air had been discussed, and it had been proved that so far as the crude irradiation products were concerned changes took place in the spectrum and optical rotation with age even when air was carefully excluded, but there was no decrease of physiological activity corresponding to this rapid change; thus it was concluded that the substance which changed with age was not the vitamin. The fact that the antirachitic and toxic actions ran parallel supported the view that both reactions were caused by the same substance. The workers had been spurred on to attempt to obtain the vitamin in its pure crystalline state; such attempts had not seemed completely hopeless, for in vacuum tubes crystals had repeatedly separated. Professor Windaus related the successive attempts in his laboratory to find a reaction which would result in the chemical separation of the crystals. This had at last been achieved, and he showed lantern slides of the crystals and their absorption spectra. The crystals were long, well-formed needles; the spectrum showed a band of main absorption at 265–270 $\mu\mu$, the absorption coefficient being 1.44. The limiting antirachitic dose had been determined to be two and a half times as active as that of the English standard preparation.

Dr. R. B. BOURDILLON (National Institute of Medical Research) said that crystalline products of high antirachitic activity had now been obtained in three laboratories—in Germany, Holland, and England. He spoke as a representative of eight workers at the Institute of Medical Research who had obtained in some quantity a crystal product which appeared to be very similar to that shown by Professor Windaus. The crystals had been obtained by a distillation process in quantities of two or three grams on a number of occasions, and a comparative study of their properties had been made. The antirachitic activity, expressed in Medical Research Council units, was between 18,000 and 20,000 units per milligram. The workers had ventured to give to this product the name of calciferol. The product had the same composition as

ergosterol, and its molecular weight was the same. Three different workers had now obtained the crystalline product. It was impossible to say whether the products were exactly identical. The antirachitic activity was similar, and possibly the optical rotations were approximately the same, though this could not be said with certainty. He thought it safe to say that all these products contained at least one substance which was essentially vitamin D, or a vitamin D, and that they were not negative products contaminated by traces of a mysterious and hitherto unknown vitamin.

Dr. OTTO ROSENHEIM (London) thought that the substance described by Professor Windaus as prepared by a chemical method and that by Professor Bourdillon and his co-workers were identical, though there might remain in both a certain amount of impurity. It was fitting that the isolation of the crystalline substance should have been worked out in two laboratories in which the announcement of the transformation of ergosterol into vitamin D was first made. He could not help expressing some disappointment that the hopes which had been raised that photochemistry and spectroscopic examination would help rapidly to a solution of the problem had not been fulfilled. Four years ago it looked as if this would come about, but now, in spite of the most laborious study, it could not be maintained that the observation of the spectroscopic behaviour of the ergosterol derivatives had contributed to any extent to the isolation of these crystals. It was a satisfaction to him as a biochemist that the success should have been due to biological and organic chemical research, although it was true that distillation was a physical process.

Vitamin A

Professor H. VON EULER (Stockholm) introduced the subject of vitamin A. He said that at the beginning of the study of vitamin A it was soon observed that carotene must be the substance which had growth-promoting activity. New experiments showed that there were two carotene substances with different melting-points, one optically active and the other not. This problem of carotene had been worked upon at Stockholm for more than a year. It was found that the absorption spectrum of one of the artificial derivatives of carotene was very similar to the spectrum believed to be characteristic of vitamin A in cod-liver oil. According to the interesting work of Moore of Cambridge, carotene when administered to rats per os was converted into a very active substance, *a*-carotene. It was now an interesting question whether carotene was transmuted in the organism into vitamin A, or whether carotene and vitamin A were different substances having distinct activities. In his own laboratory the attempt had been made to obtain conversion *in vitro*, and after various unsuccessful attempts to bring about this transformation in macerated livers of different animals they had at last achieved the conversion in the serum of hens to which carotene had been added. The concentration of carotene given in this way was in a short time diminished, and a new substance was formed, spectroscopically almost identical with vitamin A. In connexion with this transmutation of carotene into vitamin A, the question arose as to where it took place, whether in the liver or in another organ. Experiments showed that the first decrease of carotene occurred in the serum, and it seemed probable that the transmutation was effected in the blood.

Vitamin B

Professor B. C. P. JANSEN (Amsterdam) spoke briefly on the vitamin B complex. Using a suggestion made by Seidel, he had employed the classical precipitating agents and had succeeded in obtaining crystals, though in very small quantities (of the order of 30 milligrams). Dr. SEIDEL (Tübingen) said that he was pleased that Dr. Jensen, using a very slight suggestion that he himself had made, had achieved success. He himself, being something of an iconoclast and disinclined to follow the lead of others, had never used precipitating agents if he could avoid them ; he had used instead the benzol reaction which had been a useful procedure in his hands for reducing impurities. Without applying precipitating agents he had succeeded in obtaining much larger quantities of material than Dr. Jansen had obtained, but it would not crystallize. Tested on rats, however, it proved to have an activity in the neighbourhood of that of the crystals. He hoped that work in both these directions for obtaining the active product might prove successful—the one which took advantage of precipitation methods, and the other which avoided them—and if they both led to products which were of the same type physiologically it would afford a still better confirmation of the unity of vitamin B. Dr. R. A. PETERS (Oxford) put forward the view that the ultimate solution of the problems in connexion with vitamin B complex would not be reached except by taking into account the physiological side as well. With regard to Dr. Jansen's crystals, these had been found to be very marked in B_4 activity. By fractional distillation with charcoal, B_1 could be separated almost completely from B_4, but it was not possible quite so certainly to make B_4 completely free from B_1. B_1 and B_4 activities were present in different proportions, so that there was an inclination to think that they did represent two quite different activities.

Dr. H. STEENBOCK (Wisconsin) said how much he had been interested in the physiological problems connected with vitamin D, and especially with its possible relations with the endocrines, but owing to some inadequacy of technique the solution had so far eluded him. Professor E. V. MCCOLLUM (Johns Hopkins University), who was also invited to speak, said that his own contributions to researches in nutrition had been along lines other than those which formed the subject of the present discussion. He remarked that the reading of a paper twenty-three years ago by Professor Hopkins had furnished the stimulus which had kept him active in nutritional observations down to the present day.

The PRESIDENT said that the discussion might well end on an optimistic note. The progress of the last few years most decidedly made for optimism. It was a remarkable thing that the discovery of vitamin D crystals should have come from three centres almost simultaneously. He felt that the knowledge of the actual constitution of vitamin D was within measurable distance. For all vitamin research the future was bright.

TREATMENT OF IMPOTENCE

At the meeting of the Medical Society of Individual Psychology on June 11th, with the president, Dr. O. H. WOODCOCK, in the chair, a discussion was held on the treatment of sexual impotence by the methods of individual psychology.

Dr. J. YOUNG defined sexual impotence, for the purpose of his remarks and in conformity with the spirit of Adler's teaching, as "incapacity to perform the normal act of generation to mutual content with a person of the opposite sex." He thus included under this heading all forms of sexual incapacity, whether of the male or of the female, together with homosexuality and the perversions. He held that, in the absence of any gross structural defect, sexual disability was ultimately psychologically determined. He agreed with Adler that the sexual urge was moulded by the subject's "style of life." From this it followed that only in connexion with the personality

as a whole could abnormal modes of sexual behaviour be rightly understood. Frigidity and vaginismus were forms of resistance to the attainment of full maturity. The unhappy results which sometimes occurred when a frigid woman became a mother, he attributed to that general immaturity of which her frigidity was one symptom. Psychic impotence in men illustrated the justice of Adler's insistence upon the necessity for love in marriage. The same attitude held good for other travesties of sexual function, which, as he showed by reference to ejaculatio praecox, might be almost as distressing as complete impotence. He attributed the prevalence of sexual impotence to the unfortunate influence exerted by society upon the life-style of its members. This fact did not, however, exonerate individuals from responsibility. It was only by the efforts of individuals that society could be changed, and perhaps nowhere more signally than in the matter of impotence.

Dr. F. G. CROOKSHANK agreed with Dr. Young's definition of sexual impotence, implying as it did that sexual incompetence was a special manifestation of incomplete social adaptation. He said that the theory of individual psychology was closely interwoven with successful treatment, since both alike involved complete understanding. Absolute comprehension meant absolute power. He touched upon the methods of individual psychology, and upon the necessity for a complete examination of the patient, physical as well as mental. The various forms of sexual incompetence reflected the whole life study of the individual concerned. Thus masturbation was the behaviour adopted by the timid, immature individual in place of courageous, forward adjustment. The same applied to some extent to homosexuality. His opinion that this condition was acquired, not innate, and therefore amenable to encouragement and re-education, was justified by the good results of treatment by the methods of individual psychology. Other forms of sexual incompetence illustrated the same points. He referred to the weak egoism of the subject of ejaculatio praecox, and the self-satisfied desire for domination of the really frigid woman. Dr. Crookshank said, in conclusion, that treatment in all cases involved the general adjustment of the individual to the whole of his life needs. In marriage, which was essentially a constructive task for two persons, love played a fundamental part. It formed the basis upon which successful and truly happy marital relations were surely established.

Dr. NORMAN HAIRE, while fully recognizing the psychological element in many cases, insisted that attention must be paid to local organ-inferiorities; he supported Dr. Young's view of the social aspect of sexual incompetence. Dr. LEAHY gave an account of his personal methods. He stressed the elements of fear and discouragement so generally present in the patient, and the necessity for the restoration of self-confidence.

Mr. KENNETH WALKER said that he, as a surgeon, had come to feel more and more strongly that, however important the local organic changes and conditions, yet they often stood in the same relation to a general state of anxiety and neurosis as did the tache cérébrale to meningitis. He felt that, when he had done his best, or his all, there still remained much for the psychologist to grapple with. He was glad to have heard that evening of the work and methods of the school of Adler, with which he had hitherto been little acquainted. Mr. RALPH THOMPSON narrated several cases in which sexual potency existed in spite of apparently gross physical disability. Like other speakers, he appreciated the responsibility of social conditions and the scope for psychotherapy. Dr. G. GORDON mentioned the factor of psychical incompatibility as operative detrimentally in the consummation of marital relations.

Reviews

PSYCHOPATHOLOGY

Dr. ERNEST NICOLE has written a volume entitled *Psychopathology: A Survey of Modern Approaches*,[1] in which his aim is to epitomize the concepts of the different schools of to-day, emphasizing theoretical backgrounds rather than practical applications. In successive chapters the author outlines Freud's psycho-analysis; Adler's individual psychology; Jung's analytical psychology; Rivers's theories; Watson's behaviourism; Kempf's psychopathology; Berman's endocrinal attack; various biochemical and physiological contributions; Kretschmer's constitutional approach; and, finally, the teaching of the "combined" schools. An attempt is made by Dr. Nicole to show some of the points at which different lines of approach meet or at least approximate to one another. In spite of this effort at co-ordination the reader may find it somewhat difficult to digest this heavy meal of theories. No doubt in course of time it will be possible to give a more compact and uniform account of psychopathological teaching than can now be attempted. The complexity of his subject-matter is not, however, the fault of the author, and this book should be helpful to those who wish to gain in a condensed form some understanding of the various theories with which it deals. The book includes three appendices, consisting of papers previously published in the *Journal of Mental Science*.

In *The Unknown Self*,[2] by Dr. GEORG GRODDECK, we have presented, as the subtitle of this book indicates, "A New Psychological Approach to the Problems of Life, with Special Reference to Disease." The author is a physician with original and independent views, an artist rather than a scientist, and evidently has "personality." If it is desired to label Dr. Groddeck, the term "vitalist" would be applicable, for he assumes the existence of purposive entity—the It—which controls both the ego and all organic processes. Thus for motives only known to itself the It determines the sex, "decides" whether the stature should be tall or short, controls the physiological activities, and cures the individual of diseases on the one hand, or "makes up its mind" to make him ill, on the other. The book, which ends up with a Christmas story, is interesting and entertaining. It gives the impression that the writer is a very enthusiastic physician, who no doubt does his patients a great deal of good; that is to say, we anticipate he will often succeed in persuading their Its to view favourably the notion of recovery. If this book is to be enjoyed and appreciated the conception of the It should not be taken quite seriously, but rather as a poetic symbol expressing somewhat the same idea as the old aphorism—"The doctor binds the wound, God heals it."

VENEREAL DISEASES

The fact that a new edition of Dr. DAVID LEES's *Practical Methods in the Diagnosis and Treatment of Venereal Diseases*[3] has appeared is a sign that it has established itself as a textbook for medical practitioners and students. Although much new matter has been included in the new

[1] *Psychopathology: A Survey of Modern Approaches.* By J. Ernest Nicole, L.M.S.S.A., D.P.M. With foreword by W. H. B. Stoddart, M.D., F.R.C.P. London: Baillière, Tindall and Cox. 1931. (Pp. xii + 203. (10s. 6d. net.)

[2] *The Unknown Self.* By Georg Groddeck, M.D. London: C. W. Daniel Company. 1930. (Pp. 207. 7s. 6d. net.)

[3] *Practical Methods in the Diagnosis and Treatment of Venereal Diseases.* By David Lees, D.S.O., M.B., D.P.H., F.R.C.S., M.R.C.P.Ed. With introduction by William Robertson, M.D., F.R.C.P., D.P.H. Second edition. Edinburgh: E. and S. Livingstone. 1931. (Pp. xx + 634; 87 figures, 8 plates. 15s. net.)

volume the author has wisely avoided the temptation of adding materially to its length. Moreover, he has maintained the general character of the previous edition.

This is essentially a practical work. Although it contains references to literature one feels on reading the book that it is from his immense stock of material at the Edinburgh Royal Infirmary rather than from literature that the author has derived his facts. Practically all the methods of treatment that he advocates have been tested by experience, and his opinions of their value are based on first-hand knowledge. The most important additions are the chapters on cardio-vascular syphilis and the expansion of the sections dealing with neurosyphilis. Recent work has tended to emphasize still more strongly the fact that syphilis is primarily a disease of the arteries. Indeed, it has been shown that very seldom if ever do the arteries escape, however early and however complete may be the treatment given. Hence syphilitic aortitis is at least as frequent and as serious a sequel of infection with the *Spirochaeta pallidum* as are tabes and general paralysis. For this reason the author's precise instructions for the treatment of aortic disease in a middle-aged man will be of great value to all who are called upon to treat, not only the early, but the late stages of syphilis. In speaking of malarial therapy in tabes he is of the opinion that the effect of this treatment is greater in advanced than in early cases. Of all the arsenobenzol preparations on the market he finds that tryparsamide has the greatest effect in neurosyphilis, but it must be given over long periods if any improvement is to be obtained. However, if conscientious treatment with this drug is carried out not only may an amelioration of the clinical symptoms be expected, but also an improvement in the condition of the cerebro-spinal fluid. In Dr. David Lees's opinion the introduction of tryparsamide by Pearce and Browne has completely altered the prognosis and outlook for many cases of neurosyphilis.

The new edition has been enriched by the addition of eight coloured plates. We have no hesitation in saying that *Diagnosis and Treatment of Venereal Diseases* is the best work on the subject that has appeared in this country. In the reviewer's opinion it is even the best manual in the English language, for although more imposing works may have been published during the last ten years none of them have the same value for the practitioner or student who requires a textbook full of reliable and essentially practical information.

HEREDITARY OPTIC ATROPHY

A very valuable series of memoirs is at present being issued from the Galton Laboratory of Eugenics by Professor KARL PEARSON, under the general title of *The Treasury of Human Inheritance*.[4] A large number of hereditary conditions have already been dealt with, and are comprised in volume i of the *Treasury*. The second volume is to be devoted to *Anomalies and Diseases of the Eye*, and the fourth memoir of this volume, on "Hereditary Optic Atrophy (Leber's Disease)," from the pen of JULIA BELL, has recently been issued. The chief obstacle to the study of the laws of human inheritance is the difficulty encountered in obtaining satisfactory pedigrees, and one of the main objects of the memoirs is to collect together all the available pedigree material at present distributed through the literature. Leber's disease is interesting in this particular as providing a larger number of fully worked out pedigrees than any other condition; the author's plates include no fewer than 238, many of which are very full.

The disease has been known for a hundred years or more, but it was not until 1871 that its clinical features and hereditary etiology were fully worked out by Leber, a fine portrait of whom forms the frontispiece to the memoir. With regard to its transmission, Leber's disease is generally regarded as sex-limited, but the author is inclined to doubt the accuracy of this view, and in a discussion on sex limitation generally she expresses the opinion that probably haemophilia is the only disease that can be considered as truly sex-limited. On the other hand, a marked responsibility of females is noted with regard to the transmission of the disease, and the author ventures the suggestion that if the sisters of affected males were to abstain from parentage the disease would be almost exterminated. The curves relating to the age of onset show a maximum in males between the ages of 20 and 23, the curve falling rapidly above and below that period. In females two maximum points are observed—between 12 and 15 and 24 and 27, with a minor rise between 40 and 43. A curious difference is noted in the Japanese figures, the maximum in these being between 12 and 23 for both sexes. With regard to symptoms, the sole complaint of those suffering from the disease is diminution of vision, and, in rare cases, blindness; there is a central scotoma, interfering with direct vision and disabling from fine work, but leaving the patient with a measure of independence as regards mobility. The prognosis is generally considered unfavourable; complete recovery is infrequent, but improvement is estimated to occur in from 10 to 29 per cent. of the cases.

The first and only anatomical examination of a case of Leber's disease was made last year by Rehsteiner; a full account of the case is to be published in von Graefe's *Archiv*. Rehsteiner found marked atrophy of the ganglion cells and nerve fibres of the retina at the fixation point and in a large part of the immediately surrounding retina, including the papillo-macular bundle, together with a less uniform atrophy of the fibres of the optic nerve. No evidences pointing to an inflammatory origin of the condition were present, but the disease was of seven years' standing, and therefore in a late stage.

THE SMETHURST CASE

Of the fifty-three volumes of the Notable British Trials as yet published, the vast majority are of medical interest, and a certain number of them deal with the crimes of members of our profession, but not one of them exceeds in technical interest the *Trial of Dr. Smethurst*,[5] which has been edited by Dr. LEONARD A. PARRY and recently published. Not only was the accused a doctor, but throughout the trial and the subsequent proceedings medical men and medical matters were of the first importance. The accused was a medical man; the doctor whom he called in to attend the deceased was the first to give information to the police before her death; the astonishing spectacle was presented to a scandalized profession of the leading toxicologist of the day revoking in the box, at the Old Bailey, the damning evidence which he had given before the magistrates; the conflicting evidence of distinguished medical experts in the witness-box and the storm of protest which the verdict and sentence aroused in the medical press; and finally, to crown all, the surprising appeal of the Home Secretary to a distinguished surgeon, to whom he transferred the responsibility of deciding whether the clemency of the Crown should be exercised or not—all this combined to

[4] *The Treasury of Human Inheritance*. Edited by Karl Pearson, F.R.S. Eugenics Laboratory Memoirs, xxvi. Francis Galton Laboratory for National Eugenics, London. Vol. ii: *Anomalies and Diseases of the Eye* (Nettleship Memorial Volume); Part IV: Hereditary Optic Atrophy (Leber's Disease). By Julia Bell, M.R.C.P. London: Cambridge University Press. 1931. (Pp. 325–423; illustrated. 36s. net.)

[5] *Trial of Dr. Smethurst*. By Leonard A. Parry, M.D., B.S., F.R.C.S. With a foreword by John Flowers, K.C. Notable British Trials. Edinburgh and London: W. Hodge and Co., Ltd. 1931. (Pp. xiii + 259; 4 plates. 10s. 6d. net.)

produce a situation unprecedented in our medico-legal annals.

Thomas Smethurst was a retired medical practitioner who, at the age of 54, left his much older wife and contracted a bigamous marriage with a Miss Bankes, a lady of 42 years and some independent means, with whom he went to live at Richmond. The lady soon afterwards was taken ill, the chief symptoms being persistent diarrhoea and vomiting. Dr. Smethurst called in Dr. Julius, one of the best-known practitioners in Richmond, but neither his nor his partner's remedies, nor those prescribed by the celebrated Dr. Todd (who was called in consultation at the prisoner's request) availed to save her, and she died, apparently of exhaustion, but not before she had made a will, by Smethurst's advice, in his favour. Dr. Julius suspected criminal poisoning, and had a stool examined, which was pronounced to contain arsenic. Thereupon he gave information to the police, and Smethurst was arrested, but released on his own recognizances. Miss Bankes died the next day. A number of bottles of medicine and drugs were seized by the police, before Smethurst had any opportunity to tamper with them. He was again arrested, and charged with murder, and answered to the charge in a plea of "Not guilty" in July, 1859. Owing, however, to the illness of a juryman the trial was postponed to the session in August before another jury. Before the trial began the accused objected to being tried by Lord Chief Baron Pollock, on the remarkable ground that the judge was a personal friend of Dr. Alfred Swaine Taylor, an important witness for the prosecution. The objection (after consultation with Mr. Justice Wightman) was overruled.

In the trial which followed, evidence was given to the effect that deceased was from five to seven weeks pregnant. The large intestine was very extensively ulcerated, the small intestine slightly inflamed. Dr. Taylor announced that his evidence of the presence of arsenic in an evacuation which he gave before the magistrates was based on a mistake, for he had since found that the arsenic in question came from his own copper gauze which he used in Reinsch's test. Notwithstanding the strong points in the prisoner's favour of lack of motive and the facts that no irritant poison was traced to his possession nor any found in the body enough to cause death, and that the post-mortem appearances were not those of chronic irritant poisoning, the judge summed up strongly against the accused, and the jury found him, without much hesitation, guilty, and he was sentenced to death.

Thereupon a storm of protest arose in the medical and lay press. The *Times* had two leaders on the subject, and printed twenty-five letters, most of them from medical men, protesting against the execution of the sentence on the ground that there was not sufficient evidence to support the verdict. A very forcible leading article appeared in our columns in which, while stigmatizing Smethurst as a liar, a cheat, and a scoundrel of the blackest dye, it was yet contended that the verdict was against the weight of evidence, and that death was probably due to a natural cause—for example, hyperemesis gravidarum. Dr. Tyler Smith, in his evidence and subsequent letters, strongly supported this theory of the cause of death. Dr. Swaine Taylor was very severely taken to task by the medical press, and the scandalous personal antagonisms of the most distinguished toxicologists were condemned in no uncertain terms in a second article in the *British Medical Journal*. By all this storm of protest and criticism the Home Secretary, Sir George Cornewall Lewis, seems to have been quite bewildered, and he took the unusual course of submitting the papers to Sir Benjamin Brodie, the first president of the General Medical Council and consulting surgeon to St. George's Hospital. Brodie, in his letter of reply, went into many issues entirely unconnected with medicine, pathology, or surgery, and discussed them under fourteen heads, but ended with the following: "Taking into consideration all that I have now stated, I own that the impression in my own mind is that there is not absolute and complete evidence of Smethurst's guilt." Notwithstanding Lord Chief Baron Pollock's severe criticism of Brodie's letter in a personal communication to Sir George, which is included by Dr. Parry in an appendix, the Home Secretary advised the Crown to grant a free pardon. Smethurst was almost immediately tried for bigamy, and sentenced to one year's imprisonment, after which (in 1862) he had the assurance to bring an action in the Probate Court propounding the will of Miss Bankes. The jury decided in favour of the will, and probate was ordered to be granted to the plaintiff. Apparently encouraged by this success, Smethurst presented a petition for compensation to the Government, but did not obtain it.

All this and much more is to be found in Dr. Parry's book. In his introduction he puts the facts clearly before the reader, and in summing up expresses an opinion that will probably be approved by all his readers. He says: "Had there been in existence at that time a Court of Criminal Appeal, I am convinced it would have reversed the finding of the jury." But the whole book should be read by all those interested in criminal procedure and toxicology.

MEDICAL DIAGNOSIS

The Diagnosis of Internal Diseases is the second volume of Professor LUDOLF KREHL's work on Etiology, Diagnosis, and Treatment.[6] The author presents it as a supplement to the larger German works on diagnosis, and expresses the regret that what was originally meant to deal purely with general considerations has come to be more specialized than is desirable for this object, and yet not specialized enough to be exhaustive. Such a fault is unavoidable in a small textbook which deals with a large subject, and the book suffers from another disadvantage common to its kind—namely, that a work on pure diagnosis divorced from treatment is dealing always with the means to an end, and never with the end itself. Particularly is this the case on account of the author's excellent presentation of his subject from the point of view of applied physiology. He considers the effects of the disease and the general condition of the patient as being rightly of more importance than isolated physical signs, and is thus—at any rate to the reader already learned in medicine—frequently giving hints as to where rational treatment could be applied, but does not, owing to the limitations of his title, lead on into the more practical realms of therapeutics.

Criticism of this book, however, confines itself to criticism of its author's self-imposed limitations. Of its kind it is excellent. Professor Krehl has kept his balance through all the recent rapid advances of medicine. He makes full use of modern diagnostic methods, and yet is old enough and wise enough not to lose sight of the art and skill of the days of pure clinical observation. This combination of "clinical intuition" with a rational and critical use and knowledge of modern science is sufficiently rare in itself to make the book well worth reading, and while it is, perhaps, inspiring rather than directly instructive, there can be none, from third-year student to senior physician, who would not gain something from a perusal of its pages. Unlike most clinical teachers, moreover, Professor Krehl does not preach what he fails to practise himself. Thus the student will not find rules laid down for the examination of a patient which he

[6] *Entstehung, Erkennung und Behandlung innerer Krankheiten.* Von Dr. Ludolf Krehl. Zweiter Band: *Die Erkennung innerer Krankheiten.* Berlin: F. C. W. Vogel. 1931. (Pp. 172. RM. 12.80.)

knows are never followed, but will learn instead that, so long as thoroughness is not neglected, the experienced clinician will vary his examination according to the system most affected. Impossibilities, moreover, are not claimed for clinical methods, and the limitations and difficulties of percussion and auscultation are freely admitted. "Investigate as much as possible, and in any case all that is necessary," is a wise maxim, as is also "to remember it is everything" in the case of the rarer diseases.

The first chapter deals largely with the relation of doctor to patient, and the reader will find here that he has to be something more than a scientist if he would live up to the author's standards. "No one has an excuse not to be able to do a blood count" is an undoubted fact nowadays; but that familiarity with the use of the polygraph and electrocardiograph is not to be expected from all is delightfully acknowledged by the sentence "es ist nicht jeder ein Mackenzie." The later chapters deal with the various systems in order, not merely from the point of view of diagnosis in the sense of giving a name to the disease, but rather in the sense of the "summing up" or "assessment" (Beurteilung) of the patient's condition.

NOTES ON BOOKS

The first of the ten articles in the May number of the *Annals of Medical History*[7] is Dr. A. H. Miller's account of the Pneumatic Institute for the treatment of diseases by inhalation, established by Thomas Beddoes in 1798 at Bristol. The institute was a failure, but it had a noteworthy effect on science by bringing out Humphry Davy, who discovered nitrous oxide gas there in 1799. Beddoes, whose portrait appears on the cover of the number, had been a most successful lecturer on chemistry at Oxford, had inhaled ether until he became unconscious, and was the father of T. L. Beddoes, the poet and author of "Death's Jest-Book." The fiftieth anniversary of the discovery of the malarial parasite was celebrated last year, and Dr. Joseph Franchini's appreciation of Alphonse Laveran, whose portrait is the frontispiece, is published here. Last year also saw the celebration of the tercentenary of the first use of cinchona, and Sir Humphry Rolleston's address on its history, given at the Wellcome Historical Medical Museum, finds a place in this number. Dr. C. A. Elsberg of New York writes on the Edwin Smith surgical papyrus and the diagnosis and treatment of injuries to the skull and spine five thousand years ago, and Hindu medicine and its antiquity are discussed by Dr. P. J. Sarma of Chicago. The interesting subject of the considerable antiquity of pap and panada forms the substance of an article, illustrated by reproductions of pap boats, spoons, and warmers, by Dr. Drake of Toronto. Sketches of medical men, who were pioneers in physics, such as Thomas Young, Helmholtz, and T. J. Seebeck, the discoverer of thermo-electricity, are given by Dr. Podolsky of New York, and Dr. Clemens reproduces medical curiosities culled from historical manuscripts between the reigns of Henry VIII and George IV. The descriptive list of incunabula in the library of the College of Physicians of Philadelphia is continued down to number 297, but there are more to come from this treasure-house.

Thérapeutique Médicale, II: *Aliments Médicaments*[8] is a collection of articles on various "cures" and treatments by dieting. All kinds of regimes are discussed; raw and cooked meat, vegetables, fruits, bread of different types, fish, and so forth. Therapeutics of this type receive, rightly or wrongly, little attention in Britain, at least from orthodox practitioners, and instruction in such methods is absent, or practically absent, from the student's curriculum. On the whole, the attitude adopted in this country is probably the right one. The volume before us is well balanced, and no extravagant claims are put forward; the authors are men of science as well as men of sense; but it is only too easy to see how "cures" of the type described could become nothing more nor less than quackery. A dietary regime always impresses the patient, if only because it interferes with his normal habits and may cause him inconvenience; it can be prescribed by a not over-scrupulous practitioner with a great show of meticulous care and no real knowledge. In certain well-known instances it is the main, sometimes the only, method of treatment; in others, careful dieting may be a useful adjuvant to other treatment, but unfortunately the grains of wheat are so easily lost in the chaff that many practitioners are apt to fight shy of "diet therapy" as a whole. For those who are interested, however, the present volume provides much useful information.

The fourth of the Memoir Series published by the London School of Hygiene and Tropical Medicine is entitled *Anopheline Mosquitos in Southern Rhodesia, 1926–1928*,[9] by Mr. H. S. LEESON. It consists of a report of investigations made during the research on blackwater fever conducted by Dr. G. R. Ross. The anopheline mosquitos of the country are first dealt with in a general way, and then those of a particular area where blackwater fever was endemic.

Professor J. A. LINDSAY of Belfast confesses that for many years he has adopted Lord Morley's maxim that "a book which is worth reading is worth taking notes from." He has now published a little volume comprising a selection of short extracts from a wide range of authors, grouped in some sort according to the ideas expressed. This book, entitled *Among the Thinkers: Leaves from My Note-Books*,[10] forms a pendant to Professor Lindsay's medical axioms, aphorisms, and clinical memoranda, published in 1923.

The second quarterly number for 1931 of *Nosokomeion*,[11] or Quarterly Hospital Review, of which the first volume received notice in the *Journal* of April 11th (p. 630), is devoted to the various aspects of the nursing profession, including its history, international organization, and present status. The international character of the journal is shown by the fact that of the twenty-two articles in this issue three are by British, six by American, eight by German, and one each by French, Dutch, Swiss, Austrian, and Japanese writers. A bibliography of recent literature connected with hospital service is appended.

In a work entitled *Factors in the Sex Life of Twenty-two Hundred Women*,[12] which forms the latest contribution to the publications of the Bureau of Social Hygiene, Dr. KATHERINE B. DAVIS, the general secretary of the Bureau, records the results of an investigation carried out by questionaries addressed to 1,000 married women and 1,200 unmarried women. The former were all of good standing in the community, with no known physical, mental, or moral defect, and of sufficient intelligence and education to understand the set of questions addressed them, while the latter were exclusively college graduates. The questions, the answers to which are arranged in tabular form, dealt with the use of contraceptives, the frequency of conjugal relations, pre-matrimonial sex instruction, sexual desire, orgasm, masturbation, and homosexuality, which in the writer's opinion is much more prevalent than is generally supposed.

[7] *Annals of Medical History*. New Series, vol. iii, No. 3. May, 1931. Edited by Francis R. Packard, M.D. New York: P. B. Hoeber, Inc. London: Baillière, Tindall and Cox. 1931. (Pp. 253–362; illustrated. Subscription in Great Britain, 45s. per volume of six numbers.)

[8] *Thérapeutique Médicale*, II: *Aliments Médicaments*. Paris: Masson et Cie. 1930. (Pp. 328; illustrated. 45 fr.)

[9] *Anopheline Mosquitos in Southern Rhodesia, 1926–1928*. By H. S. Leeson, F.E.S., A.R.San.I. London: London School of Hygiene and Tropical Medicine. 1931. (Pp. ix + 55; 10 figures, 15 plates. 8s. net, post free.)

[10] *Among the Thinkers: Leaves from My Note-Books*. By James Alexander Lindsay, M.D., F.R.C.P. London: H. K. Lewis and Co., Ltd. 1931. (Pp. ix + 197. 5s. net.)

[11] *Nosokomeion* (Quarterly Hospital Review), No. 2. Stuttgart: W. Kohlhammer. 1931. (Pp. 265–698. Annual subscription RM. 12; single copies RM.8.)

[12] *Factors in the Sex Life of Twenty-two Hundred Women*. By Katherine Bement Davis, Ph.D. New York and London: Harper and Brothers. 1930. (Pp. xx + 430. 12s. 6d. net.)

British Medical Journal

SATURDAY, JUNE 27th, 1931

WELFARE OF THE BLIND

There is evidence that the toll of the blind in England and Wales is increasing. The last official record was made in 1929, when there were 53,727 registered blind persons; since then the registers have indicated an increase to 56,853. These figures are given in the ninth report to the Minister of Health by the Advisory Committee on the Welfare of the Blind.[1] Commenting on them, the report suggests that the figures do not indicate an actual increase in the number of the blind, but only their more effective registration. Nevertheless, some concern is felt that such a large proportion of the general population should have sight so bad as to render them "too blind to perform work for which eyesight is essential." Much work has been done for the prevention of blindness, but more should be done. The matter is under study by a committee of societies of the blind. Under Section 66 of the Public Health Act of 1925, local authorities have ample powers to make arrangements for the prevention of blindness. Undoubtedly one of the reasons for the increase of the number of the known blind is the benefits that are offered—schemes of training, assisted employment, and pensions. In 1921 the number in receipt of pensions was 7,826; last year it was 19,048. Certain anomalies have been found in the working of the provision of pensions for the aged blind. It is possible for a blind person aged 65 to receive £1 a week; at the age of 75 there is an automatic drop to ten shillings. Suggestions are made for meeting this difficulty.

It is evident that the committee views with some anxiety the working of the new Local Government Act. As from April, 1930, the detailed supervision which the Ministry of Health exercised through its inspectors over the voluntary blind societies came to an end, and this duty devolved upon the local councils. The work of the inspectors of the Ministry was of great value in encouraging the local authorities, and particularly as a unifying influence. Their work is lost just as it appeared to begin to be of effect. There is also danger that the technical knowledge they could supply may be lacking to the local authorities. The difficulty is in the way of being met by the action of a considerable number of local authorities in the North of England; these have authorized one of the associations for the blind to appoint an experienced officer as regional supervisor, whose duty will be to inspect the work of voluntary associations, and to submit reports to the appropriate authorities. In this way there will be expert advice available, and some unity of action. The scheme is one that might be copied elsewhere with advantage to all concerned. Reference is made to the recent circular letter issued by the Minister, in which he drew the attention of local authorities to "the desirability of making arrangements for securing that, before a person's name is added to the register of the blind, he is examined by a medical practitioner *with special experience in ophthalmology*, and by him certified to be blind within the meaning of the Blind Persons Act." It is added that there should be little difficulty in making such arrangements in a county borough, but there may be more difficulty in a county which is largely rural in character. In some counties it is noted that all persons claiming to be blind are examined by officers of the school medical service with special experience in ophthalmology.

In connexion with this report it is convenient to review the report of a deputation of English musicians and tuners to France and Germany undertaken at the instance of the National Union of Professional and Industrial Blind of Great Britain and Ireland.[2] The deputation numbered seven; their object was technical, but they recorded more general observations. Among their findings are the following: "In almost every essential service our [that is, the English] system of caring for the blind is far superior to the existing arrangements either in France or Germany, whilst our knowledge of conditions obtaining in Italy leads us to conclude that welfare work there on behalf of the blind is even less satisfactory. In no European State other that Britain is voluntary effort so successful and so conspicuous a feature of national life, and in none is this effort applied with such skill and administrative efficiency." Comment is made upon the figures of the blind published in the League of Nations Report for 1929. The German census of 1925 showed that there were then 58 blind persons per 100,000 of the population, whereas in 1927 there were 119 in England and Wales. The deputation decline to believe that the incidence of blindness is twice as great in this country as in Germany, in view of the fact that preventive work is not more advanced in Germany than with us. If it be assumed that the English figures are not appreciably inflated by malingering, it would appear that those for Germany do not reflect the true position. This is mainly owing to the greater severity of definition, and to the lack of inducement for the aged, and for doubtful cases, to come forward. In Germany a person must be considered blind whose sight is not more than 1/25 of the normal: in this country it is reckoned as 1/10 normal vision with glasses.

The Disablement Law of Germany compels the employment in industry of certain percentages of war-disabled men. This German experiment clearly indicates that many so-called unemployed blind could be profitably employed in factories. A few experiments on the same lines have been made in this country. There has been some opposition from organized labour. It is said that this has almost entirely subsided, because the

[1] Ninth Report of the Advisory Committee on the Welfare of the Blind to the Ministry of Health for 1930. London: H.M. Stationery Office. 1931. (6d. net.)

[2] Report of Deputation of Musicians and Tuners to France and Germany. The National Union of Professional and Industrial Blind of Great Britain and Ireland. (1s.)

blind have been able to prove their capacity to work satisfactorily. It is suggested that there is room for extension of the employment of the blind in general work, and that Government and municipal undertakings might set the example. Comment is made on the absence of training of blind masseurs in Germany and the poorness of the training given in France. The system of the National Institute for the Blind in this country has been so effective that 90 per cent. of those trained are entirely self-supporting.

ASPECTS OF THE CANCER PROBLEM

It is doubtful whether any theory of the nature of cancer which would be considered exempt from serious criticism, in one respect or another, can be formulated at present. Attempts in this direction can only be regarded as partial, and helpful only in so far as they suggest lines of inquiry or serve to bring the innumerable isolated observations on record under a single conception. Professor Scherber's recent book, "Contributions to the Solution of the Cancer Problem,"[1] is an attempt of this kind ; it brings together a vast number of alleged and established facts in a manner that renders their possible interdependence comprehensible to those who are not very well versed in cancer research.

The cancer problem has broadened out considerably in the last few years. Formerly it was a question of the discovery of the germ or other specific proximate cause of cancer ; it is now recognized that a special constitutional factor has to be taken into consideration as well. Several facts point to the existence of such a factor, among which may be mentioned the increased tendency to the disease as age advances, and the greater susceptibility of some organs in comparison with others. An actual hereditary tendency is difficult to prove in man, but it probably exists in some degree, and it has been produced in animals by suitable crossing, so as to become manifest on simple irritation in 100 per cent. of the cases (Slye). In instances such as these, in which the nature of the irritant eliciting the outbreak of the cancer appears to be a matter of indifference, the existence of a disposition to the disease is clearly the important factor—it may almost be said to be the sole factor. There are, however, cases of a different type, in which the irritant itself appears to be specific—that is, it is not a matter of indifference what irritant is employed. Of this type are many occupational cancers and a large proportion of the experimental cancers. In some instances the exact chemical constitution of the irritant has been established ; the cancer-producing substance in tar, for example, which has been studied by Kennaway and others, is an unsaturated hydrocarbon related to benzol in chemical constitution (Vaubel). Now it is a significant fact that these specific irritants do not, like infections, produce a practically immediate effect ; a more or less prolonged " latent period " must elapse before the cancer develops. This period is prolonged for years in some instances, and it is not necessarily coextensive with the period of application of the irritant, for the action of the latter may be suspended, leaving merely an induced disposition to the disease, manifested in some or all of the cases concerned. It would appear to be a fair deduction from this fact, that the specific action of these irritants is not so much the production of cancer as the production of a disposition to cancer, the irritant, as Scherber suggests, acting as a substitute for heredity in creating a general or local susceptibility to the disease. If a similar line of reasoning is applicable to spontaneous cancer generally, it should be possible to detect a production, in the body, of specific substances having this property.

In this connexion the researches of Kaminer and Freund are suggestive. These observers have shown that there exists normally, in the intestines of mice, a saturated fatty acid, formed by the action of the normal bacteria on ingested fat, and possessing anti-cancerous properties ; in predisposed animals this is replaced by an unsaturated fatty acid, produced, it is believed, by an altered intestinal flora, and they suggest that this compound, passing into the circulation, may possibly be concerned in the production of cancer. A similar substitution of an unsaturated, in place of a saturated, compound has also been shown to occur in precancerous tissue. It is not suggested that an abnormal intestinal flora is the sole means by which a disposition to spontaneous cancer may be induced. The whole field of metabolism has to be explored ; but it may be taken as proved that chemical changes in the organism have an important influence in the production of cancer, and it is possible that these changes may ultimately be found to be amenable to control.

[1] *Beiträge zur Lösung des Krebsproblems.* Von Dr. G. Scherber. Wien und Leipzig: M. Perles. (M.6.30.)

KITASATO

Baron Shibasaburo Kitasato represented an era both to the East and the West. He was one of the early group of able young Japanese who came to explore Western civilization and science in 1885. He worked under Koch's inspiration from 1885 to 1891, and to the last venerated his master's memory ; throughout the war and to the end of his life he tended reverently the shrine erected near his institute to Koch's memory. In the West, Kitasato will be chiefly remembered for his part in the work with Koch and later with Behring, culminating on December 4th, 1890, in what Professor Bulloch fitly calls " the brief but epoch-making paper " by Behring and Kitasato, which established for the tetanus bacillus the three fundamental facts—that is, that a soluble toxin is produced, that animals continuously injected therewith develop a neutralizing substance called " antitoxin," and that this antitoxin is specific. Behring's paper published a week later confirmed these three findings for diphtheria. Two years later Kitasato, returning to Japan with gleanings of European bacteriology and his own achievements, became director of the Imperial Japanese Institute for the Study of Infectious Diseases. In 1894, when the

dreaded pandemic of plague reached Hong-Kong, Kitasato and Aoyama went to investigate it. Landing on June 12th, Kitasato had by June 14th seen the specific bacillus in films made after a necropsy. It is said that he immediately cabled to Koch that he had seen the specific bacillus in films. In reply to Koch's answering cable, asking if he had cultivated the bacillus, he was able in a few days to report success. The preliminary notice was published in July in Hong-Kong. Yersin arrived in Hong-Kong within a week of the Japanese mission, and independently discovered what is now accepted as the *Bacillus pestis*. Kitasato's work and researches naturally dealt with many diseases. He investigated epidemics of plague in North-Eastern Asia, and in 1909 read a paper on tuberculosis at an international congress held in Europe. In 1915 he left the Government Institute and established his private laboratories in Tokio, where he worked for many years. It is understood that these laboratories were highly successful and provided a liberal competence.

THE WASSERMANN REACTION

The Wassermann reaction is now such a familiar test that it is perhaps hard for the modern student to realize that once upon a time there was no such thing. The discovery of this test, like most scientific discoveries, was not the result of a sudden inspiration on the part of one man, but the outcome of patient experiment by a number of bacteriologists, culminating in the publication of the researches of Wassermann, Neisser, and Bruck in 1906. In their recent memorandum,[1] S. A. Mann and F. Partner give a detailed description of the technique in use at the central pathological laboratory of the London county mental hospitals, and a brief historical summary of the work which ultimately led to the discovery of the Wassermann reaction. The starting-point of the series of investigations leading to the formulation of a test which, without exaggeration, can be said to have revolutionized medicine, was "Pfeiffer's phenomenon." Pfeiffer found that the cholera vibrio, when injected into the peritoneal cavity of a guinea-pig immunized against cholera, lost its motility, became granular, swelled, and finally disappeared. It was subsequently shown by Metchnikoff and Bordet that the phenomenon of bacteriolysis could occur *in vitro* if the cholera vibrio was brought into contact with heated immune serum in the presence of normal serum or fresh peritoneal fluid. The observation that bacteriolysis did not occur if the normal serum added was stale, or had been heated to 56° C., led to the isolation of the three components in the bacteriolytic reaction—the invading organism or antigen, the antibody, and complement. The reactions were found to be specific in character, with the drawback, however, that they could be studied only if the bacteriolysis was visible. This difficulty was overcome by the use of haemolytic systems and the discovery of the Bordet-Gengou phenomenon. It was found by Bordet that, if the red blood cells of one animal were injected into an animal of a different species, antibodies were produced in the blood of the second animal which would haemolyse the red cells of the first. Such haemolysis could be demonstrated *in vitro*. These haemolytic reactions were shown to be specific, necessitating the presence of antigen (the red blood cell of the first animal), of antibody (haemolysin of the second animal), and of complement. The presence of complement, therefore, could be detected by the use of such haemolytic systems (haemolysis not taking place in the absence of complement); and Bordet and Gengou showed that in the interaction between antigen, complement, and antibody, complement is deviated, absorbed, and lost to the systems. By these means, then, the presence of specific antibodies in the blood could be shown either by observation of bacteriolysis of the specific antigen, or by demonstration of the deviation or fixation of complement, the haemolytic system serving as an indicator. The researches of Wassermann and Bruck, of Marie and Levaditi, showed that extracts of bacteria or extracts of tissues infected with bacteria were as good specific antigens as the bacteria themselves. Moreover, it was shown later that the *Treponema pallidum* is the least suitable of antigens for demonstrating the presence of antibodies in the blood of persons infected with syphilis. Having discovered that an extract of the liver of a syphilitic foetus could serve as a specific antigen for syphilis, Wassermann, Neisser, and Bruck, using Bordet and Gengou's method of demonstrating specific immune bodies, evolved the complement-fixation test for syphilis and published their results in 1906, a year after the discovery of the spirochaete by Schaudinn and Hoffmann. These researches were carried out on the theory that the reactions involved were specific in nature, a theory which later had to be abandoned when it was shown that emulsions of lecithin, or mixtures of lecithin and cholesterol, could serve equally well as antigens in the Wassermann reaction. At the present day, cholesterol mixed with lecithin obtained from the human heart is used as the antigen, and a test which is strictly non-specific in nature is made to establish the presence of the specific infection of syphilis, although the work done in the evolution of the test was based on the theory that the interaction between antibody and antigen was of a truly specific character. The theories may change, but the facts remain the same; and the Wassermann test obeys the chief, perhaps the most important, criterion in these matters—it works.

[1] Memorandum on the Wassermann Reaction in Mental Hospital Practice. By S. A. Mann, D.Sc., F.I.C., and F. Partner. Published by the London County Council. 1931. (9d.)

THE NATIONAL PHYSICAL LABORATORY

Two pieces of investigation stand out prominently in the National Physical Laboratory's report for the year 1930.[1] One of these is the testing of large quantities of radium, including the purchases of the National Radium Trust. The number of radium preparations which passed through the laboratory last year was 5,600, as against only 343 two years ago. National radium, aggregating some 20 grams, of a value of nearly a quarter of a million pounds, and distributed in some thousands of containers, has been passed through an elaborate system of testing and record-taking. The containers are of about twenty different types, of various nominal contents, lengths, and diameters, and the "life-history" of every one of them is indexed at the laboratory, like criminal finger-prints at Scotland Yard. These containers are first of all grouped in batches, each batch containing five or ten

[1] H.M. Stationery Office. (12s. 6d. net.)

needles or tubes. The batch is then tested for any leakage of radium emanation, and if such leakage is discovered the faulty container is identified and isolated. Containers which pass the leakage test are then tested in groups for radium content by gamma-ray comparison with laboratory standards, calibrated in terms of the British radium standard, and the results are expressed in milligrams of radium element in radio-active equilibrium. An interval of twenty days separates the two measurements which are made for this purpose, and if the results are in agreement it is assumed that equilibrium has been obtained. Even when the gamma-ray measurements have been taken, they indicate only the effective, not the actual, radium content, and a further measurement is made with a correction for the thickness of the walls of the container. The laboratory is responsible, also, for distributing radium to the several centres. On instruction from the Radium Commission, the laboratory sorts out and checks the various types of containers required, and its representative travels to the centre with the radium which has been requisitioned. The other work of special interest, about which, however, no particular conclusion has yet been reached, is a large-scale investigation on noise. Progress has been made in the use and standardization of noise-measuring instruments, but recommendations for amelioration of this evil are yet to seek. The motor-horn has been the subject of special investigation at the instance of the Ministry of Transport ; but all we can gather from the report is that a horn which is not objectionable when correctly used can become a great nuisance as a result of improper adjustment, that sheer loudness is the primary consideration in determining the annoyance, and that it is possible that the occurrence of strong notes unrelated to the general harmonic series, and the manner in which the horn commences its note, may be subsidiary causes of stridency ; a much larger range of instruments will have to be studied before these points can be elucidated. The laboratory has also been investigating the noise of aircraft. Such factors as engine position, cabin wall construction, and gearing in their effect on the noisiness of machines have been studied, and experiments have been made on the transmission of sound through light material suitable for cabin walls. Further work has been carried out on the acoustics of buildings, including the Ulster Parliament House and the Salle Electorale at Geneva, where the Assembly of the League of Nations now sits ; this work consists in the correction of excessive reverberation and the tracing of echo effects. There is much else of interest in this report, which embraces the year's work of seven departments and some six hundred workers of all ranks. Mention is made of the fact that assistance has been given to the British Pharmacopoeia Commission in evolving a colour specification for the antimony chloride test for cod-liver oil, and another department of the laboratory has been co-operating with the Commission with a view to devising tests for durability of the glass ampoules used for medical purposes. The annual inspection of the laboratory and its departments took place on the afternoon of June 23rd, when visitors were received by Sir Frederick Hopkins, P.R.S., Sir Richard Glazebrook, and the director, Sir Joseph Petavel, and many experiments and pieces of apparatus were shown by the staff.

LIMITATION OF DANGEROUS DRUGS

The International Conference on the Limitation of Traffic in Dangerous Drugs, referred to in the *Journal* of May 23rd (p. 905), was opened at Geneva on May 27th. Delegates from fifty-one States were in attendance, and Senator Louis de Brouckère of Belgium was elected to the chair. In his opening address the president emphasized the complexity of the task before the conference, and recognized that while there was general agreement on the principle of restricting the manufacture of drugs to such as are required for medicinal purposes there was much difference of opinion as to the best means of realizing it. Doubts had, he said, been expressed as to the efficacy of the Geneva Convention of 1925, and it was now incumbent upon them to devise an effective plan for securing that limitation of production of dangerous drugs to medical and legitimate requirements which was contemplated by the Hague Opium Convention of 1912. The conference is assisted by three experts: Professor von Knaffl-Lenz of Vienna, Professor Tiffenau of Paris, and Dr. P. Wolff of Berlin, while Mr. Lyall, chairman of the Central Opium Control Board, attends in an advisory capacity. A sharp division of opinion soon became evident at a meeting of the Committee on Limitation last Friday, when the British delegate, Sir Malcolm Delevingne, despaired of framing an agreed form of words which would combine his proposals with those put forward by the French and Japanese delegates. By 14 votes to 2, with 6 abstentions, the Franco-Japanese proposal was adopted as a basis for discussion. This did not incorporate the quota system, propounded at the London Conference of last November, whereby agreed proportions of the world's requirements were to be allotted to the several manufacturing countries. It contemplated that no country should manufacture more than its annual estimate for medical requirements (1) for domestic use, (2) for conversion, and (3) for export ; the last-named to be based on firm orders against import certificates duly authenticated. Proposals were also made for the prohibition of the manufacture of heroin, but these did not receive unanimous support. It would appear that the initiative at present does not lie with the British Government ; on its behalf it was urged that support could not be accorded to any scheme which did not give to the medical profession the opportunity of buying what it needed wherever it considered best and in the form dictated by medical experience.

A SURVEY OF DISEASE IN SIERRA LEONE

Sierra Leone has been fortunate in possessing, at Freetown, the Sir Alfred Lewis Jones laboratory for research into the tropical diseases of Africa. Many valuable contributions to science have originated there ; the latest of these is a detailed report on a survey of human diseases in the Protectorate.[1] The survey was made in two halves: the first is concerned with the Northern Province, where the principal clinical diseases are malaria, gonorrhoea, and yaws ; the second deals with the Central and Southern Provinces, where yaws is less frequent, but other conditions, such as schistosomiasis, increase in importance. In both regions

[1] Report on a Survey of Human Diseases in the Protectorate of Sierra Leone. By Dr. D. B. Blacklock. Printed by the Government Printer, Freetown. 1930.

dermatitis of various kinds is common, while leprosy is much commoner in the north. Sleeping sickness seems to be uncommon. The usual helminthic infections occur in the country. When this report is compared with that recently published by Professor R. P. Strong, and discussed in our issue of April 11th, (p. 635), it is seen that in general the same diseases appear and in much the same order. The situation is, however, much more favourable than in Liberia. Dr. Blacklock considers that the state of general health might be improved by making use of the tribal system, in addition, of course, to the medical department and the mission workers. Chiefs should know something of hygiene ; and education in the schools should include instruction in diet, cleanliness, and sanitation, which would in due course be applied practically.

MANSON HOUSE

On June 24th the Royal Society of Tropical Medicine and Hygiene, whose first president was Sir Patrick Manson, moved into its new home, Manson House, 26, Portland Place. At present only the office and library are ready for occupation, but the other necessary alterations will be carried out as soon as possible, and a small hall for meetings is being erected at the rear of the building. As a result of the appeal issued last year by the president, Dr. G. Carmichael Low, and Sir Austen Chamberlain, nearly £12,000 has been raised, but a further £17,000 is required to equip Manson House as a suitable headquarters where Fellows when on leave or visiting England can meet and discuss with those at home the problems of tropical medicine and hygiene. The society includes workers in tropical medicine in all parts of the world, with representatives of all the well-known centres and schools of tropical medicine. The Prince of Wales and the Duke of York have sent contributions to the fund, and the council hopes that many others will wish to share in this memorial to one of the great benefactors of our race. Donations will be gratefully acknowledged by the president if sent to him at Manson House, 26, Portland Place, W.1.

SOUTH AFRICAN MEDICAL CONGRESS

The fourth annual scientific meeting of the Medical Association of South Africa (B.M.A.), which represents the twenty-fifth South African Medical Congress, will be held in Johannesburg from September 14th to 19th, under the presidency of Dr. Francis Napier ; an even more extensive programme than in previous years has been planned. After the opening ceremony and the presidential address on the first afternoon Professor C. F. M. Saint will deliver the Popular Lecture ; he will speak on cancer, and the audience will be allowed to ask questions. As in previous years there will be five main scientific Sections: medicine, surgery, obstetrics and gynaecology, public health, and special subjects. The last group is to be subdivided on this occasion into ophthalmology ; otology and laryngology ; dermatology, venereology, radiology, and physiotherapy ; anaesthetics ; paediatrics ; and psychiatry and neurology. Plenary sessions will be held in each of the five principal Sections, the subjects for discussion being constipation ; the diagnosis and treatment of acute appendicitis ; medical attendance in pregnancy, labour, and the puerperium ; pure milk supply, with special reference to legislation ; and hysterical phenomena. Numerous attractive social functions and excursions are being arranged, and visits are to be paid to such local scientific centres of interest as the South African Institute of Medical Research, the Johannesburg General Hospital, the Government artificial limb factory, and the mines. The registration fee is £2 2s. for members of the Association, and £5 5s. for non-members. The organizing secretary is Professor J. J. Levin, and the medical secretary for the congress is Dr. B. G. Melle ; inquiries should be addressed to them at the Medical School, Hospital Street, Johannesburg.

INTERNATIONAL SOCIETY OF SURGERY

The ninth Congress of the International Society of Surgery will be held in Madrid from March 15th to 18th, 1932, under the presidency of Professor de Quervain of Berne, with Professor Recasens of Madrid as vice-president. Delegates from Austria, Germany, and Hungary will again attend this congress. The scientific programme includes discussions on the diagnosis and treatment of intraspinal tumours, non-tuberculous pulmonary suppuration, the surgery of the oesophagus, and recent progress in the various forms of surgical anaesthesia. It is proposed to arrange a tour starting from Irun on March 13th, and visiting Madrid for the congress, thence proceeding to Toledo, Seville, Cordova, Granada, Valencia, and Barcelona, with an excursion from the last-named to Monserrat. The inclusive cost of this tour will be just under 4,000 francs ; inquiries should be addressed to L'Agence Belge de la Compagnie Française du Tourisme, 29, Boulevard Adolphe Max, Brussels. Further information about the congress will be supplied in due course by the general secretary, Dr. L. Mayer, 72, Rue de la Loi, Brussels.

Dr. W. W. Jameson, professor of public health in the London School of Hygiene and Tropical Medicine, has been appointed dean of the School, in succession to the late director, Sir Andrew Balfour.

We regret to announce the death of Dr. John Carswell, formerly Medical Commissioner to the General Board of Control, Scotland, and a pioneer in the treatment of mental disorder on general hospital lines.

Our *Supplement* this week includes the Supplementary Report of Council for 1930–31 ; a letter by Dr. H. H. Dale, F.R.S., on medical patents ; and an abstract of Dr. Goodbody's presidential address to the Metropolitan Counties Branch. Next week's *Supplement* will be devoted to the work and problems of the Colonial Medical Services, using that term in its widest sense.

The annual dinner of the British Medical Association will take place at the Grand Hotel, Eastbourne, on Thursday, July 23rd, at 7.30 p.m. As the accommodation is limited, it is desirable that members wishing to have tickets reserved should notify the Honorary Secretary, Eastbourne Meeting, Avenue House, Eastbourne, at the earliest possible date. Tickets will be allotted strictly in order of application.

CHARLES W. BUCKLEY: SPONDYLITIS DEFORMANS

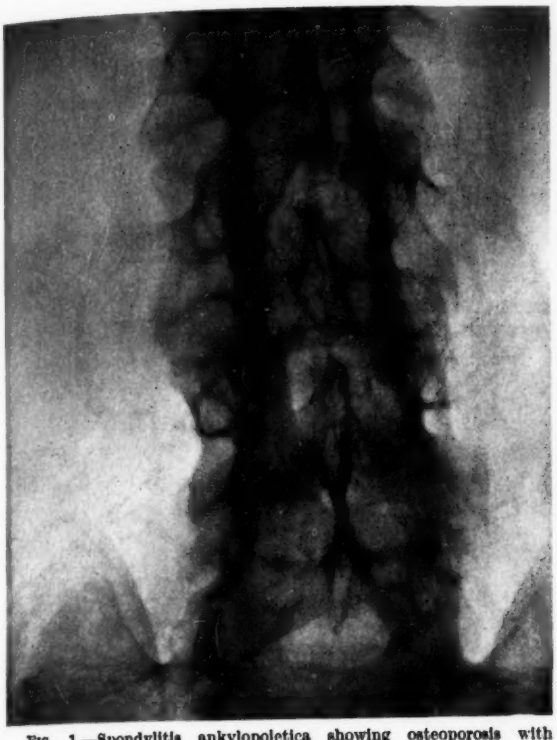


FIG. 1.—Spondylitis ankylopoietica showing osteoporosis with increased density in line of the articular processes due to the ossification of their joints, and early ossification of discs.

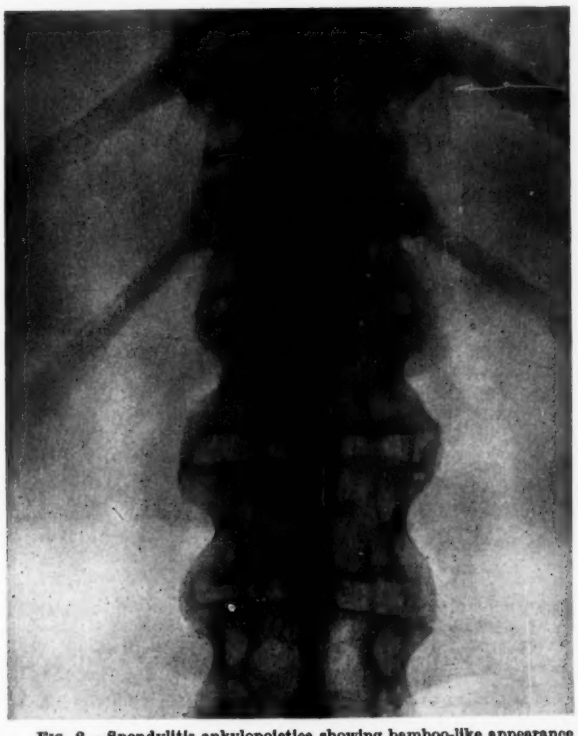


FIG. 2.—Spondylitis ankylopoietica showing bamboo-like appearance described by Krebs, osteoporosis and increase of density in lines of spinous processes, ossification of discs, and of costo-vertebral joints.

FIG. 3.—Spondylitis ankylopoietica showing ossification of edges of intervertebral discs giving rise to appearance of ossification of anterior common ligament.

FIG. 4.—Spondylitis ankylopoietica in cervical region showing ossification of anterior common ligament and intervertebral discs, ligaments, and articulations. Bechterew type.

CHARLES W. BUCKLEY: SPONDYLITIS DEFORMANS

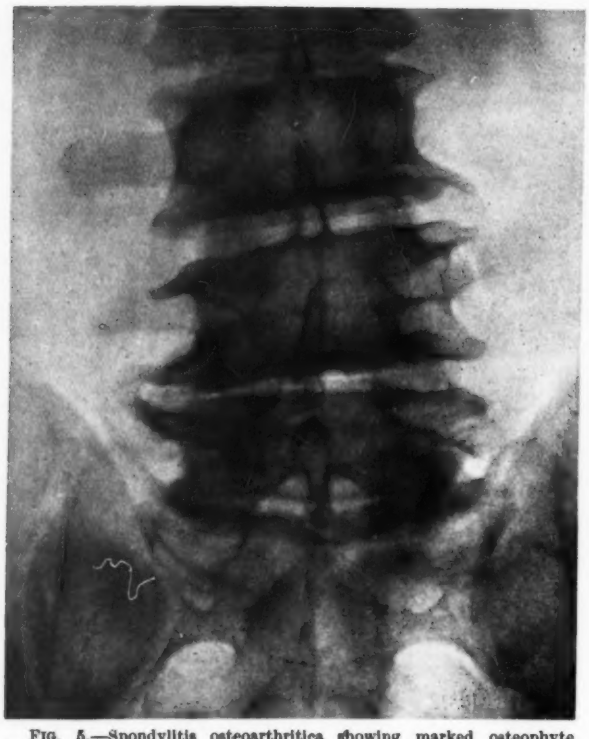


FIG. 5.—Spondylitis osteoarthritica showing marked osteophyte formation and thinning of discs.

FIG. 6.—Tubercular disease of the spine in a patient aged 50, a condition liable to be confused with spondylitis.

H. E. SEILER AND MARY D. GILMOUR: PULMONARY ASBESTOSIS

FIG. 1.—Asbestosis body and phagocytes containing granular pigment in fibrous lung.

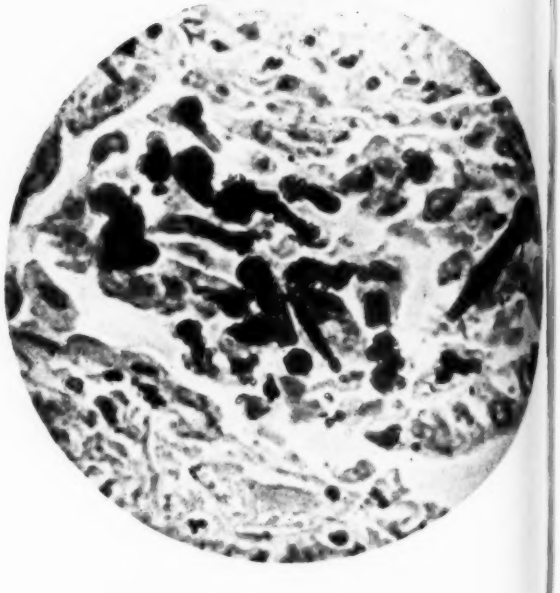


FIG. 2.—Asbestosis bodies showing discoid arrangement and globular ends.

E. T. C. MILLIGAN AND GEORGE SIMON: ROUTINE RADIOGRAMS FOR INVESTIGATION OF INTESTINAL OBSTRUCTION

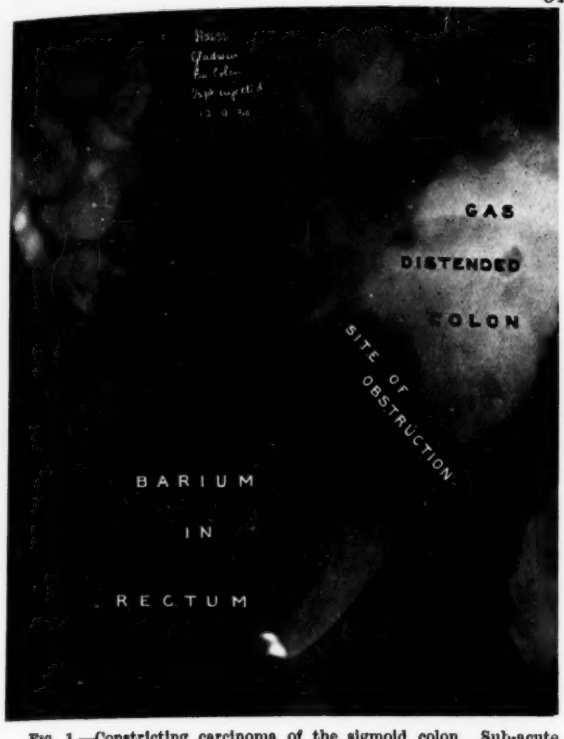


FIG. 1.—Constricting carcinoma of the sigmoid colon. Sub-acute obstruction. Male, aged 87. Excision of growth by Devine's modification of Paul's method. Note.—The gas-ballooned proximal sigmoid ends abruptly at the site of obstruction. Distinctness of the site of obstruction, thereby produced, equals that indicated by barium and in the rectum.

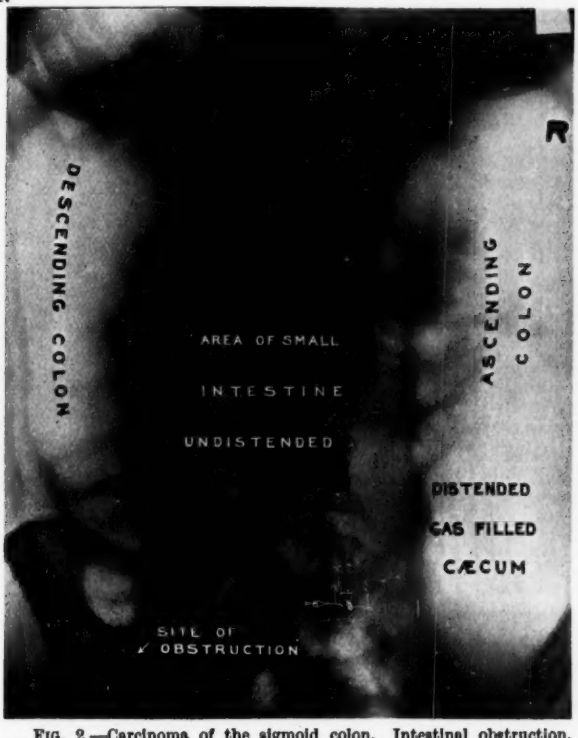


FIG. 2.—Carcinoma of the sigmoid colon. Intestinal obstruction. Female, aged 55. Excision of growth by Devine's modification of Paul's method. Note.—Characteristic gas ballooning of the cæcum, ascending and descending colon with abrupt ending localizing the site of obstruction. Small intestine is undilated and so does not show in the film.

FIG. 3.—Fibrous obstructing stricture of the sigmoid colon in a very corpulent female. Note.—Enormous distension of the cæcum which reaches across the midline showing main incidence of obstructive dilatation. The dilated transverse colon is seen in the upper part of the film, and therefore indicates site of obstruction below this point. Another film of this patient, not exhibited, revealed the actual site of obstruction in the sigmoid colon, suggesting that if the first film does not reveal the site of obstruction very clearly another taken only a few minutes later may do so.

FIG. 4.—Paralytic ileus following operative relief of small gut obstruction by adhesions. Note.—Universal gas distension and increase in calibre of small gut. The transverse striations in distended small bowel are thinner and more closely spaced than in dilated large gut. Furthermore, adjacent walls of distended small gut pressed together by gas show as striking dark bands running obliquely or transversely across the abdomen, contrasting with the clear gas-filled translucent areas between.

E. T. C. MILLIGAN AND GEORGE SIMON: ROUTINE RADIOGRAMS FOR INVESTIGATION OF INTESTINAL OBSTRUCTION

FIG. 5.—Strangulated femoral hernia. Female, aged 75; operation; recovery. Radiogram shows very early localized stage of dilated small intestine in small gut obstruction. The colon is undistended.

FIG. 6.—Carcinoma of the rectum producing obstruction. Note.—Distension of whole of large gut with gas and faeces. Site of obstruction indicated by gas is as distinct as indicated by barium in rectum.

H. HILTON STEWART AND J. H. BIGGART: ACUTE BRONCHIOLECTASIS

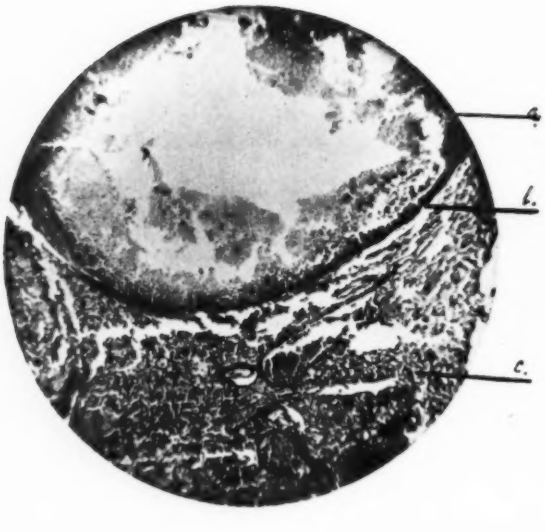


FIG. 1.—Low power view of bronchiolectatic cavity; (*a*) lumen of bronchiole filled with purulent exudate; (*b*) remnants of bronchiolitic wall; (*c*) surrounding lung alveoli partially collapsed and pneumonic.

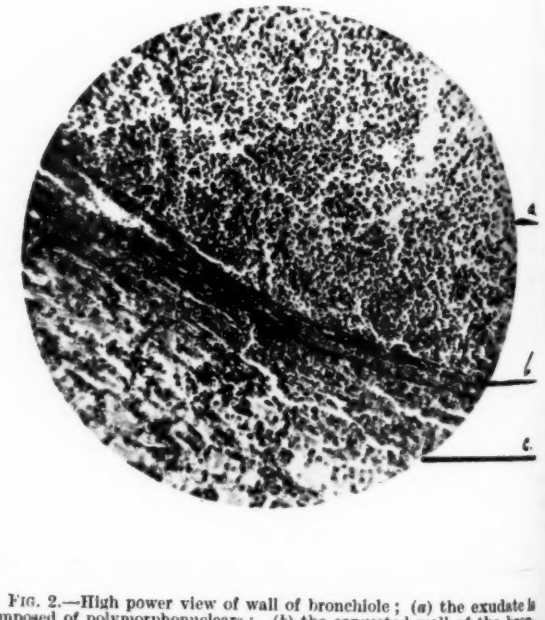


FIG. 2.—High power view of wall of bronchiole; (*a*) the exudate is composed of polymorphonuclears; (*b*) the congested wall of the bronchiole from which the epithelium has disappeared; (*c*) the partially collapsed alveoli.

SIR CHARLES HASTINGS MEMORIAL FUND

To celebrate the Centenary of the British Medical Association the Council has decided to open a fund for the purpose of establishing a permanent memorial to the memory of its founder, Sir Charles Hastings. It has been decided that the memorial shall take the form of a stained-glass window in the cathedral at Worcester, a city with which Charles Hastings was very intimately associated all his life ; the placing of a tablet on the house in Worcester in which he practised ; and the restoration and permanent upkeep of his grave in the Astwood Cemetery, Worcester. Any balance left over after these objects have been fulfilled will be given to the Sir Charles Hastings Fund, which was endowed in 1925 with a permanent income of about £70 a year by the generosity of the late Lieut.-Colonel J. W. F. Rait, I.M.S.(ret.), a former member of the Council of the Association, and of Mrs. Rait. This fund is controlled by a small body of trustees, who have power to distribute the income for the benefit of individual members of the profession or their dependants in any way that the trustees may think fit. The fund has proved exceedingly useful in cases which do not come within the ordinary scope of the Royal Medical Benevolent Fund, and in cases in which there is very urgent need for help.

Subscriptions to the memorial fund are limited to £1 1s., and a list is appended of those members of Council and others who have already contributed.

The Council appeals with confidence to members of the Association all over the world to contribute to this fund. The opening ceremony of the Centenary Meeting will be a pilgrimage to Worcester on Sunday, July 24th, 1932, when the unveiling of the memorial window and plaque will form an important part of the ceremonies of the day, which are already being anticipated with eagerness by the city authorities and by the public.

Members are requested to send their contributions without delay to the Financial Secretary, British Medical Association House, Tavistock Square, London, W.C.1, and cheques should be made payable to the "Sir Charles Hastings Memorial Fund." They will be acknowledged in the columns of the *Journal*.

First List of Contributions

Dr. G. A. Allan
Mr. J. Armstrong
Dr. F. J. Baildon
Dr. Harold S. Beadles
Professor R. J. A. Berry
Sir Robert Bolam
Dr. J. W. Bone
Dr. H. B. Brackenbury
Dr. H. C. Bristowe
Professor A. H. Burgess
Dr. J. D. Comrie
Dr. Alfred Cox
Dr. H. Guy Dain
Dr. C. E. Douglas
Mr. T. P. Dunhill
Mr. W. McAdam Eccles
Dr. D. E. Finlay
Dr. C. E. S. Flemming
Dr. E. R. Fothergill
Dr. T. Fraser
Dr. F. W. Goodbody
Dr. R. G. Gordon
Surgeon Rear-Admiral J. Falconer Hall
Col. A. E. Hamerton
Mr. N. Bishop Harman
Dr. C. O. Hawthorne
Dr. R. Wallace Henry
Dr. J. Hudson
Major-General F. H. G. Hutchinson
Dr. R. Langdon-Down
Dr. E. K. Le Fleming
Dr. R. W. Leslie
Dr. E. Lewys-Lloyd
Dr. J. Livingston Loudon
Sir Richard Luce
Dr. A. Lyndon
Dr. Peter Macdonald
Dr. S. Morton Mackenzie
Sir Ewen Maclean
Dr. O. Marriott
Dr. J. C. Matthews
Dr. G. W. Miller
Dr. J. B. Miller
Dr. Christine Murrell
Mr. A. W. Nuthall
Lieut.-Col. F. O'Kinealy
Dr. L. A. Parry
Dr. W. Paterson
Dr. R. C. Peacocke
Dr. H. W. Pooler
Dr. J. R. Prytherch
Dr. F. Radcliffe
Dr. W. Harvey Smith
Dr. E. H. Snell
Mr. H. S. Souttar
Dr. W. E. Thomas
Dr. G. Clark Trotter
Mr. E. B. Turner
Dr. H. M. Stanley Turner
Dr. W. Watkins-Pitchford
Dr. W. N. West-Watson
Sir William I. de Courcy Wheeler
Dr. W. G. Willoughby

MORTALITY FROM TUBERCULOSIS

REPORT BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS

The February and March reports of the Health Section of the Secretariat of the League of Nations contained a comprehensive statistical review of the mortality from tuberculosis in various countries during the last fifty to eighty years. Figures have been collected and arranged to facilitate the testing of current theories relating to the epidemiology of this disease. There have thus been brought to light notable changes in the mortality rates, and the existence of definite trends in that mortality as regards the populations of cities and rural areas, and at various age periods in both sexes ; it has even been possible to discern the occurrence of changes in those trends.

FALLACIES IN THE STATISTICAL CRITERIA

Attention is first called to certain imperfections and shortcomings in the statistics relating to tuberculosis, and to the danger of drawing inferences from the figures without critical examination and due correcting, it being impossible to accept at their face value all the mortality figures, and still less those relating to tuberculosis morbidity. Some are grossly deceptive, and practically all are inaccurate, though in varying degrees in different countries. Thus, as regards tuberculosis morbidity, this disease, even in its pulmonary form, is not notifiable in Austria, Belgium, the Netherlands, Sweden, and parts of Germany. In France, where notification is optional only, its inadequacy is evidenced by the fact that the number of pulmonary cases notified in 1927 was 25,666, while the number of new cases which came under the care of the dispensaries was 43,714, and the number of deaths attributed to pulmonary tuberculosis was 60,679. Since this disease does not cause more than about 10 per cent. of all deaths it is obviously a curable condition ; the number of cases reported should, therefore, far exceed the number of deaths ascribed to it. A table is included showing that this is very far from being generally the case. In some countries two cases of tuberculosis are reported for each death, in others only one, while elsewhere two deaths have been registered for each case reported!

It is clear, moreover, that the age distribution of tuberculosis has distinctly altered during the last fifty years in many civilized countries, and that the relative incidence of the various clinical symptoms has also changed. In England, for example, the acute forms are much rarer than they used to be, while the chronic ulcerative and fibrous types are now more common. This has been the case generally in civilized countries, and especially in the larger cities. In short, morbidity has declined less than mortality, except in primitive and agricultural countries, where tuberculosis is still advancing, and where the ratio of illness to mortality is lower than in urbanized countries.

Although mortality figures yield a better picture of the tuberculosis situation in any given country than do case notifications, errors are introduced by the reluctance of some medical practitioners to impose the stigma of tuberculosis, and their notifying the condition as bronchitis or broncho-pneumonia. If the tuberculosis rate falls coincidentally with the rates for the other two diseases its fall is probably real and definite, but if these other

pulmonary conditions do not follow suit, the conclusion as to the diminution of tuberculosis is almost certainly ill founded. Corrections can accordingly be made by statisticians for such factors as these, and an instance of the necessity for this is afforded by the case of France, to a less extent in her cities than in rural districts. Deficient medical facilities in isolated areas also diminish the degree of accuracy ; the existence of such a fallacy is indicated when the pulmonary cases make up more than 90 per cent. of all cases of tuberculosis—the average figure for countries possessing good medical facilities.

Despite such difficulties it is held that sufficient information is now available to give a good enough foundation for research workers endowed with critical minds and a thorough knowledge of local conditions, medical customs, and successive changes in nomenclature. In city statistics correction must be made for such factors as the attracting to urban hospitals of cases from the countryside ; conversely, the more recent tendency to place sanatoriums in rural areas must also be taken into account. Thus in Sydney (Australia) in 1920 the rate for pulmonary tuberculosis was 51 per 100,000, without including the residents dying outside the city limits, and 61 when these were included. For all forms of tuberculosis the corresponding rates were similarly 63 and 71.

TRENDS OF TUBERCULOSIS IN DIFFERENT COUNTRIES

Tables are given in the report which reveal that the mortality from tuberculosis has diminished in practically all countries for which statistical data are available. In England and Wales and Belgium the fall began in the middle of last century ; in other countries there first appears a rise in the mortality rate, then a peak, and then a downward trend. Such a peak mortality occurred towards 1871 in Scotland, about 1880 in New Zealand, ten years later in Bavaria and Switzerland, between 1896 and 1900 in Ireland and Norway, between 1901 and 1905 in Hungary, in 1905 in Czechoslovakia, and in 1909 in Japan. In most other countries the decline had already started when statistics began to be available.

From about 1750 to 1830 there was in Sweden a slow but steady increase in the mortality from " phthisis," when the average for ten years was 277 per 100,000 ; available figures after that only reappear in 1901, when the rates were slightly under 200, and have since been decreasing. The maximum mortality in that country must therefore have occurred between 1820 and 1830, or between 1830 and the end of the nineteenth century. This phenomenon has been detected in provinces as well as in whole countries ; the period of maximum mortality varying in different provinces, being earliest in the more urbanized, and later in the more rural. The figures available for Stockholm and Sweden permit inferences to be drawn as to what has been happening elsewhere.

There has also been brought to light a remarkable parallelism in the relative fall in different countries and cities during the last quarter of a century. Thus from 1887 to 1929 the rate for England and Wales fell by 58 per cent., and for London also by 58 per cent. From 1896–1900 to 1929 the rate for Austria fell by 56 per cent., and for Vienna by 59 per cent. In other countries the differences have been somewhat larger, but they are still small in comparison with the observed extent of the rate of fall.

SEX DISTRIBUTION OF MORTALITY

In England, Germany, and France the tuberculosis mortality is higher in males ; in Norway, Ireland, Sweden, Holland, and Denmark the male rate is lower than the female. Such relative positions are not constant, however ; in some periods the male rate exceeds the female, in others the position is reversed. Thus in Holland the male rate was higher than the female by 4 per cent. in 1875–79, higher by 5 per cent. in 1901, practically equal in 1905–09, and increasingly lower subsequently, the difference reaching 16 per cent. in 1929. In Belgium the male rate was lower than the female in the middle of last century ; it exceeded it by 12 per cent. in the 'nineties, but the excess has gradually decreased, being practically negligible in 1920, and rising to 7 per cent. in 1928. In England and Wales the male and female rates were equal in 1851–60 ; the male rate then began to exceed the female, the excess growing continuously, and reaching 29 per cent. in 1929. In Prussia, on the other hand, the excess of the male rate, which was 25 per cent. in 1877, gradually declined to 6 per cent. in 1928. In Scotland, as in England, the excess of male mortality increased from the 'eighties to the present time.

Generally speaking, the excess of male mortality is larger in the cities than in the various countries taken as wholes ; it is more pronounced in the great cities, and lower or non-existent in the smaller towns. In rural districts there may even be an excess in the female rate. In Copenhagen, for example, the excess of male mortality amounts to 26 per cent. ; in the smaller towns there is a female excess of 17 per cent., which reaches 31 per cent. in the rural districts. In countries where the population is mostly urbanized the same generally holds good, but not always, and there is no clear-cut correlation between industrial employment and the excess of male mortality ; it is therefore necessary to take into account the factor of age distribution.

AGE DISTRIBUTION OF TUBERCULOSIS MORTALITY

In all countries and periods the highest mortality occurs in the first year of life. The curve then falls rapidly, reaching its lowest point between the ages of 5 and 14, and increasing rather abruptly from 15 to 25. After this it either remains high or decreases according to the type of the community, the country, and the period. The curves exhibit a definite parallelism for both sexes, but show differences, some being constant and others inconstant. During the first year of life there is a regular excess of the male over the female mortality rate, ranging from 20 to 25 per cent., but sometimes reaching as high as 55 per cent. This is attributable to the greater general debility of male infants, a phenomenon worthy of more intensive research than it has yet received. Subsequently, until the age of 12, the rate is the same for both sexes, and remains very low. From puberty until 25 the female rate is higher than the male, in the cities as in the countryside, and in every period of history.

After 25 three types of curve are distinguishable. In Type A the curve reaches its maximum height at the age of 20 to 30, falling then and remaining practically horizontal until about 70, when a second peak becomes observable. Such a flat curve is associated with a low general tuberculosis rate, and is found in Australia, Denmark, Scotland, the United States, Germany, and the Netherlands. The curve for England is closely similar, but rises somewhat higher at the part corresponding to late adult life. Type B has a single mortality peak from 20 to 40, sometimes centred at 25 ; this is followed by a gradual slowing down corresponding with a low mortality in the older age groups. Such a type is often associated with a fairly high general tuberculosis rate of from 125 to 250, and is observed in Japan, Greece, Sweden, and the Irish Free State, and, since the war, in Norway. The curve of Type C, after rising from the age of puberty to 25, continues its upward movement, reaching its maximum in late adult life or even in old age. This curve is found in countries with a comparatively high tuberculosis death rate, such as Switzerland, Esthonia, Latvia, and Czechoslovakia. Cities often show a C curve at one time or another ; Paris has one at present, Oslo showed it in 1871-85, and Amsterdam in 1885-94.

In any country these curves undergo slow changes according to the fall of the death rate evenly or otherwise. In the Netherlands and Norway there has been no recent change, but in Scotland a curve of Type B during the last thirty years of the nineteenth century was gradually transformed into a Type A curve, through a gradual reduction of the toll of tuberculosis on the young adult ages ; the fall at other ages apart from the first year of life being smaller.

The following explanation of the successive changes in the type of curve is put forward. When a generation

is highly infected with tuberculosis in infancy, it presents a persistently high death rate through the normal span of life. A period of high infant tuberculosis mortality is followed after about twenty-five years by a high death rate of young adults, and of mature adults some twenty-five years later again, an interval of some sixty to seventy years elapsing between the waves of high mortality in infants and in old people. A generation of young parents with a high tuberculosis morbidity will in turn give rise to a new generation of infants similarly infected, and so the type of curve will persist, unless new factors supervene to diminish the mortality at one point or another, when the curve will change correspondingly. The influence of these factors can be statistically evaluated by the changes in the curves.

The report ends with a short biblography, which will be helpful to some statistical inquirers. It is a thought-provoking contribution to the subject of tuberculosis epidemiology, and should serve a useful purpose in checking hasty and speculative conclusions based on ill-digested or even inaccurate statistics.

THE LISTER INSTITUTE

ANNUAL REPORT

In the report of the governing body of the Lister Institute of Preventive Medicine,[1] which was presented at the annual meeting on June 10th, regret is expressed at the resignation, through illness, of Sir James Kingston Fowler, who, until last March, had acted as the chairman of the Board during the absence abroad of Sir David Bruce. Sir James Fowler joined the governing body in 1918 ; he was a member of the finance committee, and had acted as chairman of the serum department committee. During the year death removed two members of the council—namely, Sir Andrew Balfour and Dr. H. de Riemer Morgan—and also Professor Lorrain Smith and Dr. A. T. MacConkey, both of whom had been members of the Institute since 1907. A brief survey is given in the report of the different lines of research work which have been in progress during the year.

The Viruses of Vaccinia, Variola, and Fowl-pox

Professor J. C. G. Ledingham has continued his study of the Borrel bodies, which occur in very large numbers in the lesions of fowl-pox. It has been shown that the well-known Bollinger inclusion bodies (seen in the epithelial cells of the fowl-pox lesion) consist of agglomerations of these Borrel bodies in a lipoprotein matrix. It is highly probable that they are the actual invading agents, and Professor Ledingham has been able to demonstrate the presence in potent bacteria-free filtrates of fowl-pox of an abundance of these bodies. He has also demonstrated the presence of similar elementary bodies in a new virus isolated from the virus disease of mice. Vaccinia virus has been successfully cultivated by Drs. G. H. Eagles and D. McClean, who have carried it through a considerable series of subcultures ; they used an entirely cell-free culture medium, consisting of the supernatant fluid obtained after centrifugalizing a mixture of finely minced fresh rabbit's kidney and Tyrode's solution. The apparent irregularities of virus increase in different flasks during an experiment was encountered in such cell-free media as in others ; they are attributed to variations in the reaction to vaccinia virus displayed by individual rabbits. Such variability is now controlled by injecting vaccine lymph into every test animal employed for serum titration purposes. No satisfactory method has been devised yet for preserving virus which has been cultivated in the chick embryo and plasma medium of Carrel and Rivers, but anaerobic storage in the presence of agar gave better results than did other procedures. Attempts by Dr. Eagles to propagate the virus of small-pox in rabbits have been unsuccessful.

Poliomyelitis and Vaccination

Continuing their work which was mentioned in last year's report (see *Journal*, 1930, i, 1187), Drs. R. W. Fairbrother and E. W. Hurst found that when both the small-pox vaccine and poliomyelitis viruses were injected intravenously, the resulting vaccinal reaction had no power to alter the haemato-encephalitic barrier in such a manner as to permit infection of the central nervous system with poliomyelitis. Intradermal vaccination had no influence on poliomyelitis virus which had been inoculated into the brain, and it did not activate or render more virulent a weak strain of the virus. When the two viruses were injected intracerebrally, the two diseases evolved quite independently ; if it was arranged that their incubation periods should terminate simultaneously, the characteristic lesions of both existed side by side, without any apparent modification of one by the other. Drs. Fairbrother and Morgan succeeded in obtaining from a horse a greatly improved serum, which it is hoped to employ in the treatment of human poliomyelitis. It was discovered that in this serum the antibody was attached, for the most part, to the euglobulin fraction. Dr. Fairbrother detected antiviral bodies in the serums of normal individuals who had been in contact with cases of poliomyelitis, without, however, developing the disease.

Bacterial Studies

Dr. J. A. Arkwright has been investigating bacterial variation, with particular regard to changes in fermentation reactions and the possibility of there being some correlation between antigenic change and fermentative properties. An assessment of the prophylactic value of variously prepared antiplague vaccines is being made by Dr. H. Schütze. The superiority of the Haffkine prophylactic has been established, while the ordinary agar-grown, heat-killed vaccine has been shown to have no value. In the course of these experiments indications have been obtained that the type of protein supplied to the plague bacillus for its culture has an important bearing on the antigenic efficacy of the resultant vaccine.

Vitamin Studies

Drs. Schütze and Zilva, using rats as the experimental animals, and *S. suipestifer* as the infecting agent, have demonstrated the existence of a very definitely lowered resistance to infection among animals deprived of vitamin A, as compared with those kept on fully adequate diets. Special attention has been devoted to the distribution of vitamin B_1 and B_2 in natural foodstuffs. The theory associating pellagra with a simple deficiency of vitamin B_2 in the diet has been weakened by the discovery that maize and its products are not poorer in this vitamin than are other cereals, and this notwithstanding the fact that the incidence of pellagra is almost wholly confined to populations subsisting on the maize group of cereals. The vitamin B_2 content of maize has been found to be greater than that of rice, and little, if at all, lower than that of wheat. Consumption of rice, however, has only exceptionally been found associated with the incidence of pellagra. Miss Roscoe and Miss D. Graetz found that leaf vegetables, such as watercress, lettuce, spinach, and cabbage, are rich sources of these vitamins, more especially of B_1 ; while onions, carrots, turnips, and potatoes are much poorer. It was demonstrated, also, that in the cooking of spinach leaves diffusion of the vitamins into the cooking water is rapid, about half the original content being lost in fifteen minutes' boiling.

[1] The Lister Institute of Preventive Medicine. Report of the Governing Body, 1931. London: Chelsea Bridge Road, S.W.1.

KING EDWARD'S HOSPITAL FUND

ANNUAL MEETING

The annual meeting of the General Council of King Edward's Hospital Fund for London was held at St. James's Palace on June 9th, with the PRINCE OF WALES in the chair. A message from the King expressed his pleasure at the increased distribution in 1930, and the hope that the public would realize the importance of maintaining the income of the King's Fund and of the hospitals during the present difficult times.

His Royal Highness stated that the distribution in 1930 was £266,000, as compared with £250,000 in the previous year. A gift of £2,000 had been made by the Nizam of Hyderabad, and the British Charities Association had allotted £10,000 for the London hospitals. The year 1931, so far as it had gone, was proving even more difficult than 1930 ; there was an increase in the number of hospital deficits, but, on the other hand, it should be remembered that the finances of the voluntary hospitals generally before the present crisis had been steadily improving. The difficulties they were now facing, added the Prince, were due to world-wide depression, and not to any weakness in the voluntary system itself. The report of the Hospital Economy Committee showed how the King's Fund had been assisting the hospitals in reducing to a minimum the margin between the number of beds available and the number actually occupied. The report issued on the waking hours of patients illustrated how the Fund collected and circulated data of the present position in this respect in each hospital, and had subsequenty made a definite, though cautious, recommendation. The League of Mercy deserved special thanks for having maintained its grant of £17,000 for four successive years. Moreover, an entirely new and unprecedented item—a special trust fund of £20,000 given by an anonymous donor—had resulted in an income becoming available to assist a hospital to pay off its building debts on condition that no fresh building expenditure was incurred without the approval of the King's Fund. Since the end of the year under review a legacy of £50,000 had been received on behalf of the late Sir Otto Beit ; this represented his third recent benefaction to the Fund, which had thus received from this source a total of £106,000.

Accounts for 1930

The total receipts of the King's Fund for 1930 were £493,950. This income was sufficient to cover the increased distribution of £266,000, special grants totalling £16,468 towards the superannuation scheme for nurses and doctors, and the carrying forward of a further £15,000 to reserve for the pensions grants in future years, together with a balance carried forward of £5,600 for the King's Fund. A sum of £116,000 was also added to the capital account as the result of special grants and legacies, including £90,000 under the will of Lord Revelstoke. The number of hospitals receiving grants was 141, as compared with 143 in the previous year. The number of convalescent homes receiving grants rose from 52 in 1929 to 55 in the year under review. Each eligible hospital which had applied for a grant was inspected, and a report was rendered by two visitors on behalf of the Fund, one medical and the other lay. The total sum distributed among hospitals, convalescent homes, and tuberculosis sanatoriums during the last ten years, including all special distributions, was £3,183,592. Since the creation of the Fund in 1897 a total amount of over £6,770,000 has been distributed. In allocating an additional sum of £1,000 to convalescent homes during the year, the Distribution Committee took into special consideration the extent to which the various homes provided medical or nursing treatment or care, thus releasing hospital beds sooner than would have been possible otherwise.

Reports of Subcommittees

The annual list of pay beds published by the Fund shows that the total number of these beds at the end of 1930 was 1,425 at ninety-nine hospitals, as compared with 1,055 at eighty hospitals in March, 1928, when the Pay Beds Committee of the Fund was preparing its report on the whole subject. The insurance scheme for members of the professional and middle classes submitted to the King's Fund by the British Provident Association in 1929 formed the subject of a report published by the Management Committee in 1930. Alternative schemes of premiums have been drawn up making provision for weekly charges for a pay bed in a hospital, or for a bed in a nursing home, and, if desired, for medical or surgical fees also. Contributions were made towards the capital cost of a pay bed, in return for which a subscriber had prior claim to the use of such a bed, when approved for admission according to the rules of the hospital.

Lord Luke, chairman of the Revenue Committee, presented a report on the work of the Propaganda Subcommittee, and commented on the increasing number of ways in which money was being obtained. The committee had also supplied helpful information to the authors of an interesting book, entitled *The Romance of the British Voluntary Hospital Movement*, which was published during the year.

Sir LEONARD COHEN, chairman of the Economy Committee, who reported on the relation between total beds and the number actually occupied in various hospitals, stated that a memorandum on unoccupied beds had been issued in August, 1930. Information was circulated as to the reason given for closing beds, the way in which the occupation of open beds ceased between the times of discharge and admission of patients, and the comparative incidence of vacancies in beds for men, women, and children respectively, in medical and surgical wards.

DIET AND DISEASE IN NATIVE RACES IN THE TROPICS

During the past ten years the conception that disease may be due to deficiency of this or that element or complex in the food has developed greatly. Formerly, the idea of " deficiency disease " centred round the vitamins, and in this category only such conditions as scurvy, beri-beri, rickets, and keratomalacia were included. Now, however, it is gradually being realized that vitamins are not the only substances the absence or insufficient supply of which may give rise to deficiency disease ; and that lack of a sufficiency of such mineral elements as calcium, iron, iodine, manganese, and possibly some of the rarer elements, may also cause disease of this order. The truth is slowly being made plain that man is composed of what he eats ; that defects in the architecture of the human edifice are largely due to defects in the quality of the food, especially during the growing period of life. These defects are often at the root of disease processes which manifest themselves clinically in later life, and they can be prevented, or, when established, they can (if not too far advanced or complicated by superimposed infection) be rectified, by correcting defects in the composition and balance of the dietary. It is slowly being realized also that not only is the bony framework of the body affected adversely by faulty food, but the tissues generally ; that the functional efficiency of all cells, the maintenance and harmonious regulation of chemical processes in the tissues, the composition of the blood and body fluids, and the capacity of the organism to resist many infectious agencies, are all dependent, in great measure, on the quality of the food and on the balance between various constituents of it. Accordingly, the idea of " deficiency disease " has now a wider significance, and soon it will have served its purpose and given place to another—namely, that of disease associated with faulty nutrition of any kind in which maladies affecting every system of the body—respiratory, digestive, urinary, endocrine, and nervous—will have a place.

This knowledge has, for the most part, been gained by experiments on the lower animals, and the time is now ripe for controlled investigations "in the field" which will correct, supplement, and confirm those of the laboratory. Such an investigation is that recorded in the report by Drs. J. B. Orr and J. L. Gilks, recently issued by the Medical Research Council.[1] The report deals with the physique and health of two African tribes, living side by side under similar climatic and hygienic conditions. The diet of the one (the *Akikuya*) consisted mainly of cereals, being very rich in carbohydrates and deficient in animal protein, fats, calcium, and vitamins A and D—defects commonly conjoined in certain native dietaries in India. That of the other (the *Masai*) consisted mainly of meat, milk, and raw blood—a diet too rich in protein and too poor in carbohydrates and fresh vegetable foods. The members of the former tribe were, in general, of poor physique, and abnormalities of bone, dental defects, spongy gums, anaemia, yaws, malaria, bronchitis, pneumonia, phthisis, rheumatism, helminthiasis, and tropical ulcer were of common occurrence among them. Those of the latter tribe were of much better physique and were significantly less affected by most of the ailments mentioned; but they suffered more from constipation and arthritis than did the former tribe. Further, the dietary of the young children, the girls and women of the Akikuya, was better balanced than that of the older boys and men, and this appeared to be "clearly reflected in differences in physique and health." Generally speaking, physique and health were better in the young children, girls, and women of this tribe than in the older boys and men. This experience points in the same direction as a recently recorded observation in albino rats (*British Medical Journal*, June 6th); and it is difficult to resist the conclusion that there was a definite relation between the diet and disease-incidence of the two human communities.

In addition to their clinical observations the authors of the report have brought forward experimental data which "lend support to the suggestion that deficiencies in the diet, abnormal composition of the blood, and reduced susceptibility to certain diseases which have been noted in the Akikuya tribe, may be correlated." Of particular interest in these respects are their findings relating to calcium deficiency. Tropical ulcer was found to be associated with high phosphorus and low calcium content of the blood in ulcer cases.

The importance of investigations of this kind at the present stage of evolution of knowledge concerning nutrition can scarcely be overestimated. They have "a great interest in relation both to general scientific questions of nutrition and to particular problems presented by the native races inhabiting British colonies in the Tropics"; and "the information obtained from them is calculated to hasten the improvement of the physical condition of the native and to increase his importance as an economic factor." The close relationship between diet and the physical efficiency and health of the people of India and its economic importance to that country have been emphasized from time to time during the last few years in India; and evidence to that effect has been given before two Royal Commissions in India—that on agriculture (1926) and that on labour (1929). Experience in India is in general agreement with the conclusions arrived at by the authors of this valuable report.

The report is one which has not only a great interest for medical men and administrators in the Tropics, but the findings therein have an interest also for those nearer home.

R. McCARRISON.

[1] Medical Research Council. Special Report Series. No. 155. Studies of Nutrition: The Physique and Health of Two African Tribes. By Drs. J. B. Orr and J. L. Gilks. London: H.M. Stationery office. 1931. (2s. net.)

Scotland

HEALTH OF SCOTLAND

The following notes, extracted from the second annual report of the Department of Health for Scotland,[1] are in continuation of the paragraphs published in this column on June 13th (p. 1041).

Housing and Town Planning

The Housing (Scotland) Act, 1930, is the ninth Act passed since the war to deal with housing in Scotland. In the eleven years up to December 31st, 1930, during which State assistance has been given, 117,353 subsidized houses have been built, while 12,797 working-class houses have been provided without subsidy; these 130,150 houses practically represent the shortage estimated by local authorities in 1919. About 100,000 houses of the working-class type, however, are still required. The report points out that with the stabilization of subsidies, the local authorities have now extended their programmes, and that plans have been approved by the Department for the erection of a much larger number of houses than in the preceding year. Some thirty-nine local authorities, including three county authorities, proceeded during the year with slum clearance schemes, under which 17,712 occupied houses were condemned. The problem of providing urgently needed houses in rural districts is complicated by the fact that the population in these areas is dwindling, while the cost of building is higher and the rents are lower than elsewhere. Town planning in Scotland made little progress during 1930, but about eight town councils resolved to prepare schemes for portions of their areas still undeveloped.

Infectious Diseases

The chief infectious disease during 1930 was scarlet fever, 16,393 cases being notified. This figure, however, is lower by about 1,000 than the average incidence of the last decennium. Notifications of diphtheria (11,580) exceeded those of the previous year (10,471), but a notable decrease of 4,500 cases is recorded in the figures for pneumonia. Pulmonary tuberculosis occurred in 5,689 cases during the year, compared with 6,112 in 1929, while the corresponding figures for non-pulmonary tuberculosis were 4,286 and 4,228 respectively. It is satisfactory to note that the mortality from tuberculosis in Scotland continues to decline, the death rate of 88 per 100,000 of population for 1930 comparing very favourably with the previous lowest recorded rate of 94 in 1929. With regard to venereal diseases, the number of patients treated up to May, 1930, was 30,281; of the 17,687 new patients, 12,054 (72 per cent.) were found to be infected. Patients discharged after tests as cured numbered 4,525.

Highlands and Islands Medical Services

Following the passing of the Highlands and Islands (Medical Service) Additional Grant Act, 1929, a sum of £30,000 was voted for this service in addition to the annual grant of £42,000, and a further sum of £10,000 in respect of mileage and other special charges for medical benefit was transferred from the Scottish National Health Insurance Fund. The number of practices in which services are rendered under this scheme is 154. Grants-in-aid have been given as in previous years for surgical services in hospitals at Lerwick, Kirkwall, and Stornoway. The report points out that the recent extensions carried out at the Royal Northern Infirmary, Inverness, will enable a much better service to be provided in the Highlands, and for this purpose a grant of £5,000 per annum is being given to this hospital for ten years,

[1] Cmd. 3860. Edinburgh: H.M. Stationery Office. (3s. 6d. net.)

besides a special grant of £1,000 towards the cost of radiographic equipment. On account of the difficulty experienced by local nursing associations in obtaining nurses for this area owing to the arduous conditions under which nurses have to work, grants have been provided to augment nurses' salaries, and in some twelve nursing districts financial assistance has been given to maintain a number of small motor cars for nurses. Grants have also been provided for the erection of houses for doctors or nurses at various places.

National Health Insurance

The report of the Department for 1929 drew attention to the effect on national health insurance administration of changes in production and marketing which increased casual and irregular employment and reduced the inflow of young persons to industry. These conditions, aggravated by the world-wide depression, became more serious in 1930, especially in the Clyde area. During the year it was again found necessary to pass an Act of Parliament to prolong the insurance benefits of persons who had experienced lengthy periods of unemployment. The number of insured persons entitled to medical benefit during the year was 1,858,000, and the administration expenditure incurred by insurance committees amounted to £51,931, 2,033 insurance practitioners sharing the sum of £836,100 for medical attendance and treatment. Practitioners in the rural districts of the Lowlands were paid £42,500 in respect of mileage, and as already mentioned, £10,000 was transferred from National Health Insurance funds for this purpose in the Highlands and Islands. A sum of £10,000 was paid to practitioners in respect of drugs and appliances to insured persons who had serious difficulty in obtaining them from chemists. The number of chemists under agreement with Insurance Committees was 1,393, and the sum estimated as payable to them in 1930 is approximately £151,850, in addition to £6,820 for the cost of insulin supplied to diabetics. With regard to change of doctor, it is proposed to allow in future an insured person to transfer at once by consent of both doctors, but otherwise only at the end of a quarter, and provided he has given notice in writing to the insurance committee. In the event of a substantiated complaint by an insured person, the committee may authorize immediate transfer. The continuance of the summary card record has been rendered unnecessary by the introduction of the morbidity statistics scheme, under which insurance practitioners will be obliged to supply information in connexion with investigations having a scientific or practical bearing on their medical work. These investigations will be instituted by the Department on the advice of the Scientific Advisory Committee. The practitioner will be obliged to furnish a medical report to the hospital or clinic to which he refers a patient for diagnosis or treatment. Of the thirty-six cases of complaint brought to the notice of the Department, six were not substantiated ; in six others the practitioners concerned were warned or censured, and in the remaining twenty-four penalties amounting in the aggregate to £280 were imposed. In forty-one cases reports were received from insurance practitioners who considered that the services they had rendered lay outside the scope of their obligations. These cases included ophthalmoscopic examinations, appendicectomy, enucleation of tonsils, injection of varicose veins, ultra-violet ray treatment, and various operations. Generally speaking, the local decision, with which the Department concurred, was that such services were outside the scope of medical benefit, and the practitioner was allowed to charge a fee. Efforts were continued to develop the consultant side of the work of the regional medical officers, and doctors in areas not closely related to a large hospital were informed that requests would be received from them for advice on diagnosis and treatment, and that the services of consultants of standing would be available in cases where the regional medical officer considered such services to be necessary. The report states that doctors have been slow in taking advantage of these facilities. In certain incapacitating conditions a point is often reached in recovery when the patient is no longer incapable of work, and this is held to apply specially to anaemia and chronic nephritis with persistent albuminuria. In regard to additional benefits, following upon the third valuation at the end of 1927, 248 societies were found to have disposable surpluses for which proposals of additional benefits came into effect in July, 1930. The great majority of these provided supplementary cash benefits or gave a service of "treatment" benefits, such as dental treatment, ophthalmic treatment, including the provision of glasses, and the supply of medical and surgical appliances. The lack of detailed and accurate information relating to sickness among the general population has been realized for some time, and within the past year adequate machinery has been put in operation for the collection of data. This scheme, although confined to the insured section of the population, embraces more than one-third of the entire population of Scotland, and is expected to afford a picture of the health conditions of the community as a whole. The procedure initiated by the Department for this purpose is as follows. Each doctor is allotted a permanent reference number, which provides a clue to the Insurance Committee and regional medical district. Approved societies operating in Scotland forward to the Department lists containing the particulars recorded on first and final certificates issued by insurance practitioners. Societies with more than 10,000 members furnish this return daily, and those with fewer members, weekly. These returns give the reference numbers, the occupation, sex, year of birth, cause of incapacity, and dates of the initial and final certificates. All this information is coded, and from the data available it is expected that the Department will be able to supply information of great value on problems relating to sickness and invalidity among this section of the population. It will be possible, for example, to show the geographical distribution for different diseases, the variations according to sex, age, occupation, and season, and the duration in relation to age and sex. The scheme came into operation on July 1st, 1930, and some of its results are given in the report.

Edinburgh Hospital for Sick Children

The annual meeting of the Royal Edinburgh Hospital for Sick Children was held on June 16th. Lord Provost Sir Thomas B. Whitson, who presided, said that there was a marked increase in both the in-patients and out-patients of the hospital ; the total number of attendances in the past year had been 41,402. Since the town council had taken over the work of the old education authority and the old parish council under the Local Government Act, 1929, a considerable increase of hospital administration had been thrown upon the corporation, but they could congratulate themselves upon the conduct of the Edinburgh voluntary hospitals. For the past seventy years this institution had been one of the most outstanding of its kind. It was gratifying that, compared with last year, there had been an increase in the ordinary income. The report shows that the total number of cases treated in the wards during 1930 was 3,232, compared with 2,864 in 1929. Of these 1,317 were medical, 1,182 were surgical, and 672 were ear and throat cases. The average daily number of patients in the hospital was 127, and the average duration of stay seventeen days. The ordinary income for the year was £13,923, compared with £13,813

in 1929 ; the ordinary expenditure was £18,839 compared with £18,903. Thus although the total number of cases treated during the year was 386 more than in 1929 the total sum expended on maintaining the hospital was slightly less. The convalescent home has proved of great value as an adjunct to the hospital ; during the past year 118 patients from the wards were sent to this home. By the will of the late Miss Helen Mackenzie, funds amounting to £6,761 have been transferred to the trustees for the convalescent home in memory of her brother, and in recognition of this bequest the directors have named a wing the William Mackenzie Wing. At the request of the Edinburgh Corporation a rheumatism clinic has been inaugurated in the out-patient department of the hospital.

Aberdeen Nurses' Home

The new nurses' home at Aberdeen City Hospital was formally opened on June 18th by Mrs. Rust, wife of the Lord Provost. Mr. John M. Vallance, assistant secretary to the Department of Health for Scotland, in the course of an address, remarked that the hospital services of the city of Aberdeen had gained an enviable reputation. Aberdeen had been a pioneer in the organization and administration of modern hospitals. Lord Provost Rust said that the corporation had provided a municipal hospital at Woodend, and had now erected this nurses' home at the City Hospital at a cost of over £30,000, but they expected to do still more in making provision for the public health of the community. He anticipated that they would go on to provide laboratories, which were so necessary in every well-equipped hospital.

Ireland

Royal Medico-Psychological Association

The ninetieth annual meeting of the Royal Medico-Psychological Association will be held in Dublin, under the presidency of Dr. R. R. Leeper, on Wednesday, Thursday, Friday, and Saturday, July 8th, 9th, 10th, and 11th, at the Royal College of Physicians, by kind permission of the President and Fellows. On July 7th Dr. Ariens Kappers, director of the Dutch Central Institution for Brain Research, Amsterdam, will give an address and demonstration in the Anatomy School of Trinity College, to which all members and visitors are invited, and at 4.30 o'clock the Lord Mayor of Dublin will give a civic reception in the Royal College of Physicians. The events on July 8th will be the general meeting and presidential address, a reception at St. Patrick's Hospital, and the annual dinner in the Royal College of Surgeons. The mornings of July 9th and 10th will be devoted to the reading of papers ; entertainments on these days include a luncheon given by Messrs. Arthur Guinness, Son, and Co., a dinner by the " Strollers " Club, and a performance at the Abbey Theatre ; a garden party at the Royal Zoological Gardens by the President and Mrs. Leeper, and an evening reception at the Vice-Regal Lodge by His Excellency the Governor-General and Mrs. McNeill. The whole of July 11th will be spent in motoring through County Wicklow as guests of the members of the Irish Division. All communications should be addressed to the general secretary, Dr. R. Worth, Springfield Mental Hospital, Tooting, London, S.W.17.

Royal Victoria Hospital, Belfast

At the bi-monthly meeting of Royal Victoria Hospital, Lord Dunleath presiding, it was reported that the recent Hospital Saturday collection brought in £2,769, and the board passed a resolution conveying heartiest thanks to the honorary secretaries, Rev. J. Brice Coates and Mr. J. Herbert Ireland, to whose enthusiasm the collection owed much of its success ; to the superintendents of districts, who year after year gave their services ungrudgingly to the cause ; and especially to the large band of willing collectors, whose work was beyond all praise and without whom the collection could not be carried on ; also to the press, which put the claims of the institution so potently before the public ; and to the manager of the Belfast City Tramways for facilities for advertising. The honorary secretary reported the receipt of £1,000 from the family of the late Mr. John M'Watters (per Sir Thomas Houston) to be expended on the equipment of that floor of the new laboratories which is to be used for the clinical pathology of the hospital ; £150 from the City of Belfast Charities Football Competition ; and £50 from the Irish Rugby Football Union.

Lurgan Hospital Reconstruction

At the monthly meeting of Portadown Chamber of Commerce the secretary reported that a deputation from the chamber had interviewed the Minister of Home Affairs for Northern Ireland with reference to the sanction of the expenditure of £40,000 on the conversion of Lurgan Workhouse into a district hospital before the institutional policy for the Six Counties had been decided on, and urged the claims of Portadown for hospital accommodation. Sir Dawson Bates, the report stated, explained that the Ministry gave its decision before settling the institutional policy because derating had placed it in such a position previously that it could not proceed with its institutional policy for the whole Province at present. The Lurgan scheme being pressing, the Ministry decided to allow the guardians to proceed with the alterations, but this, the Minister said, would not prejudice the claims of Portadown when the institutional policy was being considered. The Minister added that it was not intended to alter the Lurgan Union area by cutting off the parts in the counties of Antrim and Down. He promised to consider the different points put forward by the deputation and to communicate with the Chamber. The president remarked that if the Ministry had written more fully and explained its reasons in the first instance the chamber would not have spoken as strongly as it did. The Ministry had cut the Lurgan loan down to £33,000.

Health of Kildare School Children

In his annual report Dr. J. A. Harbison, medical officer of health for County Kildare, states that a love of cleanliness must be inculcated in the children, and the parents must be made to realize that to permit habitual uncleanliness in their children is an offence against them and against the community. Further statutory disciplinary measures in this respect are required, and powers similar to those of the English Education Act, 1921, are necessary to enable the efforts of the teachers, school nurses, and school attendance officers to pursue actively a cleanliness campaign. The report contains many references to the subject of malnutrition, and mentions that the number of children in the County Kildare schools who were reported to be suffering from lack of proper nourishment had been reduced to 10 per cent. of the total number inspected. The report goes on to say that malnutrition is much more often due to improper, unsuitable food than to insufficient food. Milk is, and must be, recognized as the most important single item in the dietary of a child. Only by giving parents sound instruction on the hygienic and economic feeding of their children from their earliest years can it be hoped to improve the physical standard of the infant and school population. The extension of school meals schemes, by combining local voluntary efforts with State guidance

and assistance, is a matter which must claim early attention. When, as in so many families, the income is small, it is the quality rather than the quantity of the children's food which is diminished, for the cheapest foods must be bought. Hence, through supplying school meals, they can make an effort to remedy the deficiencies in quality, and at the same time educate the child and its parents in the proper selection of foods and the respective values of food items. Twenty per cent. of the children, the report states, were found to be suffering from enlarged tonsils and adenoids. To see that children possess handkerchiefs and thoroughly clear their noses, and that they perform correct nasal breathing, is a task in which the teacher can materially help, and in doing so he will be improving the cleanliness and decorum of his classes. In conclusion, the report states that the school medical service is now fairly well established, and is being appreciated and encouraged as a welcome addition to the State services. The conception of a school medical service as primarily an organization for the detection and amelioration of defects, though one which appeals and will continue to appeal to many, is slowly giving place to the larger view of its purpose—the prevention of the onset of disease, and the bringing up of the child in the way of health.

England and Wales

Home Ambulance Service

In the report for the quarter ended March 31st, 1931, the Home Service Ambulance Committee stresses the importance of individual responsibility in maintaining the reputation of the service. It points out, for example, that while the technique of stretcher drill may be admirably expounded in first-aid textbooks, its successful application in unexpected emergencies, especially in country districts, must depend upon personal qualities of resource and adaptability, fortified by a capacity for immediate and decisive action. Members of divisions and detachments are therefore urged to cultivate a spirit of self-reliance, based on adequate knowledge, so that they may be able to execute their duties in circumstances which cannot be foreseen in any routine course of training. They are also reminded that they are ultimately responsible for upholding the standard of mechanical efficiency, since the service comprises a large number of scattered units without any central organization for the systematic inspection of the vehicles employed. These considerations are of obvious importance in dealing with road accidents, which, according to the report, continue to increase. In 1930 the number of persons killed or injured in road accidents in Great Britain was 185,200, compared with 177,613 in the previous year. Commenting on these figures, the committee remarks that there is still much work to be done in organizing first-aid posts and in providing first-aid boxes to meet the conditions that have been brought about by the speed and volume of modern traffic. One of the most interesting sections of the report gives some details of the first-aid road services that have been established in various European countries, following the example of the organization set up by the Order of St. John of Jerusalem and the British Red Cross Society in 1926. In Belgium, where there are now 137 first-aid posts, a card is placed in each station giving the name of the nearest doctor, nurse, hospital, motor ambulance, and other information. More than 1,000 first-aid posts are at present in operation on the roads of France, while in Germany a number have been established on certain highways every four or five kilometres. During the quarter under review 27,000 patients were carried by the committee's ambulances, which number 320, including 99 affiliated stations. A comparative table of the work done in various countries is printed at the end of the report.

Presentation to Dr. Griffith of Hove

Dr. Augustine Griffith, who is retiring from the position of Medical Officer of Health for Hove after thirty-two year's service, was entertained to dinner, together with his wife and daughter, on June 15th at Brighton by his medical colleagues, who took this opportunity of testifying to the cordial relations which have existed between him and them throughout his long tenure of office.

Dr. L. A. Parry, chairman of the Brighton Division of the British Medical Association, presided, and handed to Dr. Griffith an album containing the names of all the guests, and announced that a bookcase, subscribed for by the doctors of Hove and a few friends, was being forwarded to Dr. Griffith's new home. Proposing the health of the guest, Dr. Parry said that the absence of friction between Dr. Griffith and his professional brethren in the town during the past thirty-two years had been made possible by his kindliness, consideration, and tact. Dr. Donald Hall, chairman-elect of the Division, in supporting the toast, said that Dr. Griffith's reign in Hove had been one of calm and efficiency. In returning thanks Dr. Griffith said that his idea of a medical officer of health was that he should not be an official with a machine to work, nor a consultant who thought he knew better than other people: "He is practically a liaison officer who is there to fit things in when necessary. His duty towards his profession and the public is to help them when he can, and be in sympathy with all those who need help, and give them a lift when he can do it." The arrangements for a very successful evening were made by Mr. St. George B. Delisle Gray, honorary secretary of the Brighton Division.

Bio-Physical Assistants the Guests of the Apothecaries

The old portraits in the hall of the Society of Apothecaries in the City of London looked down upon a very modern innovation on the afternoon of June 20th, when the bio-physical assistants enrolled under the aegis of the Society were entertained by the Master and Wardens. Colonel Samman, the Master, welcomed the guests, who included many blind masseurs, and they were briefly addressed by Dr. L. D. Bailey, who recounted the history of the enrolment. Dr. Bailey bore testimony to the part played as far back as 1921 by Dr. C. B. Heald and other physiotherapeutists, who were troubled by the wide extent to which certain physical treatments were given by unqualified people. He reminded them that the matter was taken up by the British Medical Association, which elaborated a scheme for forming a roll of qualified assistants, and that the scheme was adopted and furthered by the Society of Apothecaries, and an organization for the teaching and examination of such assistants established. In 1930 the first roll appeared, including about five hundred names; the number had now risen, said Dr. Bailey, to just over 1,000,[1] and would soon be further augmented, following the results of recent examinations. He added that there was little doubt that the branch of medicine in which they assisted would assume much greater importance in the future—witness the recent formation of a Section of the Royal Society of Medicine devoted to the subject, also a "Practitioners of Physical Medicine" Group in the British Medical Association—hence the greater need for securing it against all quack intrusion. Dr. Bailey wanted to see still another committee formed, one which would include eminent lay people who had

[1] *The Register of Bio-Physical Assistants*, revised to March 31st, 1931, was published as a Special Supplement to the *British Medical Journal* of May 9th.

shown their interest in medicine, and especially in this branch, also representatives of physicians, orthopaedic surgeons, and general practitioners, for the purpose of inaugurating post-graduate lectures on the subject for medical men, refresher courses for bio-physical assistants, influencing the large hospitals to undertake research in this field, and inviting and scrutinizing articles for publication. After this brief address the company were entertained to tea, and these practisers of a very modern art found much to interest them in the hall, with its two and a half centuries of history.

Correspondence

TREATMENT OF DYSMENORRHOEA

SIR,—I have read with much interest the address on the treatment of dysmenorrhoea by Mr. Venn Dunn, published in the *Journal* of June 6th. Since the majority of patients suffering from dysmenorrhoea consult the family doctor rather than a gynaecologist, I venture to think that, although a general practitioner, I may be permitted to comment on some of the statements made in that address.

In the opening paragraph he says: "The importance of a complete investigation of every case of dysmenorrhoea cannot be too greatly stressed." I must also quote part of his last paragraph:

> "The age of the patient will give no indication whether the pain is due to some functional or endocrine derangement or to organic change. There is only one way in which a correct diagnosis can be made—by a thorough examination of the patient. If the patient is a young woman, often even if she is older, it is necessary to examine her under an anaesthetic. The lithotomy position, and a visual examination of the vaginal vault with speculum and terminal mirror, followed by a careful palpation of the uterus and adnexae, are the minimum necessities."

In girls and young unmarried women gross pathological conditions of the generative organs are rare, and can nearly always be detected by examination per rectum without an anaesthetic. In the case he quotes the ovarian cyst of the size of a cricket ball in the girl of 15 could not have been missed. It therefore seems to me unjustifiable to subject the large majority of patients to the numerous disadvantages of a vaginal examination and inspection under anaesthesia, in order that the exceptional cases may have the doubtful benefit of such a procedure.

One disadvantage of the complete examination is that, if the surgeon sees anything which he considers abnormal —for example, a cervix of unusual shape or size, or a pinhole os—he is apt to overlook the wide variations in the normal and to think he has discovered the cause of the dysmenorrhoea, and to feel impelled to attempt to improve upon nature by operation; whereas the above-mentioned conditions, as well as acute retro- and ante-flexions of the uterus, are all to be found in cases where menstruation is normal, and are therefore not, *per se*, the cause of dysmenorrhoea.

During many years of general practice I have treated several hundred cases of dysmenorrhoea in which pathological conditions of the pelvis and appendix were excluded without vaginal examination in women of ages ranging from 15 to 35, with the almost invariable result that the patient has cured herself of her disability by means of daily exercises, definitely prescribed or in the form of work or games. Stress is laid on the fact that it is of the utmost importance to do these exercises on the first and second days of the period, as the pain is thereby prevented. In most cases one interview is sufficient. After a few months a report, in person or by letter, has satisfied me that the dysmenorrhoea, including pain, sickness, or fainting, is a thing of the past and under the patient's own control. I must add that nothing short of actual experience in the severe cases would have convinced me of the universally beneficial effect of exercise during the period—vigorous enough to make the patient feel hot.

I have therefore come to the conclusion that the method of treating dysmenorrhoea by dilatation of the cervix as advocated by Mr. Venn Dunn, although long established, is unjustifiable, and should never be employed in a young woman for the sole purpose of relieving pain at the menstrual period.—I am, etc.,

ALICE E. SANDERSON CLOW, M.D.

Cheltenham, June 15th.

SIGNIFICANCE OF HAEMOPTYSIS

SIR,—Haemoptysis in the case of chronic tuberculosis is commonly taken to indicate that the disease is active, and in the last few months I have come across four cases in which patients have been recommended sanatorium treatment because of this symptom alone.

Haemoptysis is apt to occur in any case of fibrosis of lung; in bronchiectasis it is the rule rather than the exception. In fibrosis resulting from healed tuberculosis haemoptysis is common. It may be the initial symptom in pulmonary tuberculosis, and I agree that an unexplained haemoptysis in a patient apparently healthy should be taken as a definite indication of tuberculosis, so that the patient should be kept under very careful supervision; the disease is usually active, but not necessarily so. In the case of chronic fibroid tuberculosis which has apparently healed, the occurrence of haemoptysis does not, however, indicate that the disease has again become active.

I remember one patient who died after an operation for gall-stones at the age of 68, who had repeated haemorrhages for the last thirty years of his life; he would sometimes bring up over a pint of blood, and he used to return to his work after two or three days' rest. He told me he was so accustomed to these attacks that they did not worry him, except that he had a feeling of suffocation whilst the blood was coming up.—I am, etc.,

London, W.1, June 18th. L. S. T. BURRELL, M.D.

PSEUDO-ARGYLL ROBERTSON PUPILS WITH ABSENT TENDON REFLEXES

SIR,—In my letter in the *Journal* of June 6th (p. 1001) I wrote that Dr. W. J. Adie, in his paper under the above heading, had not alluded to the first account of similar cases published in England—namely, that of Dr. C. Markus (1906). Dr. Adie, in his letter on page 1091 of the *Journal* of June 20th, remarks that this author did not give "'an account of such cases' . . . he described an isolated case." It is certainly true that only the first of his cases had absent tendon reflexes, but if it be admitted (as Dr. Adie seems inclined to think) that some of the cases with the same pupillary phenomena but without absence of tendon reflexes are examples of a milder form of the same disorder, then I hope that Dr. Adie will allow that I was not very far wrong in my statement.

There is, doubtless, room for a book on the various groups of abnormal pupillary reactions, and Dr. Adie's paper is of especial practical value to doctors if he has made it clear that the form of pupillary reaction which he describes is not due to syphilis. But what is the cause of the condition? The subject of Dr. Markus's third observation (whom I know) had the type of pupillary

reaction (in one eye) described by Dr. Adie, though he did not have absent tendon reflexes. He has informed me that a deceased sister of his had unequal pupils, one of which did not react properly to light but reacted to convergence, and also that he has a granddaughter, aged 3, who for the last two years has had one pupil enlarged and not reacting at all, or deficiently, to light. His father and mother were second cousins. Family history in various cases may throw some light on the nature of the condition and as to whether, as Markus suggested, in some instances it might represent a local "abiotrophy" in Sir William Gowers's sense.—I am, etc.,

London, W.1, June 20th. F. PARKES WEBER.

OPERATION FOR CATARACT

SIR,—The correspondence on cataract and medical practice, started in the *British Medical Journal* of May 16th (p. 877), raises several issues of great interest.

I have operated on a number of medical men, both in India and in England, and have never known one of them give up medical or dental practice after a successful cataract extraction. The vision of such a patient is usually well over 6/6, and the reading vision is that of diamond print. One surgeon, a specialist who works in deep cavities, and for whom I extracted both his cataracts some years ago, tells me that he "never operated better, and can pick up the tiniest bleeding vessels with ease." The same is true of the dental surgeons. In one respect the cataract patient is at a disadvantage, for, however acute his vision is straight ahead, he sees less well laterally because he has no lens to help him there. His power of perceiving moving objects does not, however, appear to be materially damaged, and patients with cataract glasses can move about the world and can drive cars quite well. The real dangers in motoring lie rather in negligence than in defective vision.

With regard to the question of the removal of a cataract while the other eye remains healthy, my strong advice to every man who is in good health, and who wishes to lead an active life, is to have a mature cataract removed at once, regardless of the condition of the other eye. My reasons for this advice can be weighed as easily by the layman as by the medical man. They are:

1. Grave risks are incurred by a patient who is blind on one side. I have recently operated for unilateral cataract on a surgeon, aged 32, who came to me in deep distress because after being advised to have nothing done he had knocked down a lady in the street. As he explained to me, "I never saw her till I heard her scream." I have also known an elderly patient damaged by walking into a lamp-post, and thus sustaining a severe fall. Still another of my patients was knocked over by a tradesboy with a cycle; she never saw him before he struck her. Such instances might be multiplied. Knowing that there is a feeling against operating on a blind eye while the other is still seeing, I have, for many years past, gone out of my way to ask patients, after operation, whether they consider it an advantage having had the sight restored to the blind eye. My partner Colonel Kirkpatrick has done the same. We can neither of us remember one who had any hesitation on the subject, and I submit that these patients are in a far better position for giving an opinion on this point than any ophthalmic surgeon, however great his experience. They are not theorizing—they know. I do not suggest that it is possible to work an eye fitted with a cataract lens (even though its vision may be 6/6 or better) in a pair with a normal eye. The size of the image differs, and the resulting diplopia makes binocular vision impossible. As a rule, so long as no lens is prescribed, the amount of vision obtained does not cause interference with the other eye. If it does, a Chavasse glass in front of the operated eye stops all unpleasantness, whilst leaving the lateral field available for safety purposes.

2. After a successful operation the patient has, for the rest of his life, an eye in reserve, and one which can be made useful at any time by the mere fitting of a suitable glass. The daily experience of an ophthalmic surgeon shows how many possibilities of evil lie in wait for an apparently healthy eye. No organ is exempt from some one or other of the many forms of injury or disease. The importance of having a second eye in reserve is therefore immense, not only for the confidence it gives in health, but also for its value in a time of emergency. This side of the question has been specially impressed on me by my experience in glaucoma cases. Much of the nervousness which some of these patients exhibit, and which is often so definite a part of their psychologic make-up, is, I believe, due to the fact that one eye has been already partly or wholly lost, and that subconsciously this is never altogether absent from their minds. To allow an eye to remain blind when it can be restored to potential vision is to my mind, for the above reasons, a grave error.

3. Cataract is usually bilateral, and in the great majority of cases one can be sure that it will affect the second eye sooner or later. Indeed, if we except traumatic cases and those due to a definite preceding disease in the eye, it is an open question whether one ever finds an absolutely clear lens on the opposite side to a mature cataract, always provided that a thorough examination is made through a dilated pupil. The great probability is that sooner or later we shall have to operate on the first eye. Why not do it at once when the patient is relatively young and when every factor is in his favour? The younger the patient the better the prognosis after an operation for cataract; and every year lost tells against the prospect of success.

4. A patient with mature or hypermature cataract is in danger of secondary glaucoma or of iritis. In India we found 3 per cent. of our cataract cases suffering from secondary glaucoma, and a troublesome form of iritis was also met with from time to time. It will be urged that nothing like this percentage occurs in England. The reason is that very few cataracts are allowed to become hypermature here. The risk is nevertheless present and the lesson plain.

A third point raised in this correspondence is, whether there is any material advantage gained by operating on the second eye, commensurate with the risk involved, especially in old persons. I should answer this strongly in the affirmative. Shortly, my reasons, which reproduce something of what has already been said, are:

1. The patient is much safer from accident, as he obtains a wider field of vision on that side, and so can avoid danger in the street, etc.

2. A successful operation gives an extra insurance against blindness in the event of any accident or disease affecting one or other of the eyes.

3. The risks already discussed associated with hypermaturity are avoided.

4. The patient is not troubled with coloured vision after the second lens has been extracted.

5. A point of great importance—binocular vision is restored. Two eyes have a higher visual acuity than one; two eyes have a wider range of vision than one; two eyes give much greater comfort than one.

I freely admit that there are cases in which it is well to rest content with good sight in one eye. The patient's health, his age, the amount of shock sustained in the previous operation, and other factors, have to be carefully considered; but my point is, that my attitude would rather be to weigh the adverse factors against the enormous advantage of binocular vision, than to make much of the risks and other disadvantages involved, and little of the great benefits to be obtained.

Dr. David Hardie, with whose letter I am in close agreement, asks for expressions of opinion as to whether an operation on the second eye is more dangerous than

on the first. In glaucoma I think it is, but the psychology of the glaucoma patient is a curious one, and places him more or less in a class apart. The case of the cataract patient is different. He is often better operation material for the second eye than for the first, with the one reservation that he is necessarily older. He knows what to expect ; he anticipates a good result ; he is often more resigned as a result of the passage of years, and he has a strong desire to get rid of the handicap imposed by his blindness on one side ; moreover, he has probably lost all his teeth—a most favourable point. Where the operation on the first eye has failed the surgeon demands, and the patient acquiesces in, an extreme rigidity of preparation and treatment beyond that which can ordinarily be asked.—I am, etc.,

R. H. ELLIOT,
Lieut.-Colonel I.M.S. (ret.).

London, W.1, June 15th.

SIR,—Having had cataract removed from both eyes, at an interval of over five years, and having incidentally experienced most of the possible incongruities between the vision of the two eyes, I have had opportunities of forming an opinion of the conditions under which removal of cataract is desirable.

My opinion may be stated as follows: (*a*) One normal eye is incomparably more useful than even two that have been deprived of the crystalline lens. (*b*) Any difference between the vision of the two eyes is confusing, whether the difference be in definition or size or colour. It follows that as cataract in one eye develops, it confuses the patient ; and sooner or later it becomes impossible to make the less distinct image coincide with the distinct one by binocular action. A clearer view is therefore obtained by wearing a ground glass before the cataractous eye, or by holding something opaque between the eye and the object.

Under these circumstances no relief is likely to result from removal of the cataract ; for the images formed by the two eyes, being grossly different in size, are beyond the possibility of binocular combination. But when the second eye becomes cataractous it is well to remove the more urgent cataract without any avoidable delay, so as to save the patient from many inconveniences, including eye-strain with its complications. The removal of the cataract from the second eye is a matter of ordinary discretion. But if the result of the second operation is less successful than that of the first, the patient may be saddled with the above-mentioned nuisance of different and incompatible images in the two eyes.—I am, etc.,

F. J. ALLEN.

Shepton Mallet, June 16th.

SIR,—The object of my previous letter was not to provoke a controversy, but only to draw attention to the personal experiences of a well-known ophthalmologist who had undergone an operation for cataract while he could still see well with the other eye. Schmidt-Rimpler also referred to the " moderate extension " of the field of vision which is obtained by operation, but found its value diminished for reasons which he has given. Cases in which such an extension is thought desirable are, of course, governed by the reference to "individual reasons." No oculist, it may be hoped, ever asks his patients to wait until they are in a condition of " visual impotency " before recommending operative interference.

The risks I had in my mind are those which remain after precautions with regard to local anaesthesia and the patient's teeth have been taken. They are not concerned with the eye only, and, though uncommon, are not negligible. There is no added risk in connexion with the second eye. Unnecessary expense and worry are, however, worth taking into consideration.—I am, etc.,

H. M. TRAQUAIR.

Edinburgh, June 17th.

NUTRITIONAL VALUE OF MILK

SIR,—The letter from Dr. R. Stenhouse Williams in the *Journal* of June 13th on this subject surely calls for comment. He suggests that the conclusion, as regards the comparison of pasteurized with raw milk, of the report of the experiment with Lanarkshire school children is faulty, and that the results really show that the increase of growth in the case of raw milk was " significantly " greater than in the case of pasteurized milk.

Now this is surely a point that can be proved by statistical law, and one may assume that the authors are following the established rule. However that may be, the authors of Dr. Stenhouse Williams's quotation appear to exaggerate—almost grossly (judging simply from the quotation)—in referring to " the very marked difference " between the effects of the two kinds of milk. The figures set forth in the report make it very clear indeed that there is at the most very little difference, and one is not surprised to find that the authors conclude that this difference is not statistically significant. Therefore I would like to submit that the Lanarkshire experiment strongly confirms the statement in the Ministry of Health's recent memorandum which you quoted in your leading article—to the effect that proper pasteurization does not impair the nutritive value of milk for practical purposes.

This is a fact which I suggest requires to be firmly grasped by the whole of our profession and presented to the nation with emphasis. We know that milk has a very high nutritive and protective value, and that its consumption is lamentably small in this country. Why, then, have we not as a profession done our utmost to secure greater consumption? Simply because we also know that a great deal of milk is highly dangerous and is spreading disease among children daily. Some fifty new cases of non-pulmonary tuberculosis are discovered every day in England and Wales, and of these, of course, a considerable proportion is due to the bovine bacillus. There is a very heavy burden of individual suffering caused through milk ; there is a financial burden borne by the nation of millions of pounds annually ; and there is a not inconsiderable burden borne by industry through absence of young workers on account of surgical tuberculosis.

Dr. Stenhouse Williams is naturally concerned primarily with the welfare of the dairying industry, but he would agree at once that the welfare of the whole community constitutes a prior claim. He mentions the proportion of Grade A (T.T.) milk consumed in Reading ; I would like to ask him his estimate of the time it will take to induce all or even four-fifths of the population to buy milk of this standard. The crux of the matter is that so many people cannot afford it. It is essential to produce safe milk at the ordinary price.

Pasteurization gives us a safe food, and I would suggest to the dairying industry that universal pasteurization would greatly benefit that industry as well as the national health. If we as a profession could be sure that milk is safe it would be our duty to recommend strongly increased consumption, and we would gladly give the industry the full weight of our authority to that end. Increased consumption would of course help the farmer and dairyman. If we turn down pasteurization we deliberately condemn thousands of individuals to disease, suffering, and in some cases death. We have every right to ask the dairying industry—and for that matter our own profession—to face up to that undeniable fact.

Finally, may I suggest, Sir, that the time has perhaps come when those medical men who believe in pasteurization should unite to say so?—I am, etc.,

D. L. TUCKER, M.R.C.S., D.P.H.

London, N.W.1, June 16th.

THE CAUSATION OF STONE IN INDIA

SIR,—I have twice read Colonel Robert McCarrison's very interesting and edifying lecture on the above subject, and I may read it a third time before I am much older; but in the meanwhile I am craving for information on some points which I think require elucidation, lest I should die before the discovery is made. The lecture is teeming with vitamins, and I have been long anxious to know their chemical composition and physical structure.

You can buy vitamins by the ton at a very substantial price, so druggists are making good profits out of the ignorance of the medical profession. No chemist—not even a biochemist—has been able to discover their chemical composition; the nearest approach is that when some of the sterol compounds such as ergosterol are exposed to the mercury vapour lamp they become charged with vitamin D, but you must be careful not to overcharge, lest the stuff become poisonous. It may thus turn out that vitamins are vibrations in the ether, of definite wave-lengths, and a biophysicist may eventually be able to measure the wave-length and determine the dosage.

I believe in accessory food factors, substances which are essential to nutrition and even to life itself, though they may have no intrinsic food value of their own. Sydney Ringer was among the first to discover some of the accessory food factors which are absolutely essential, not only to the maintenance, but to the very inception of life. The lymph distributors of George Oliver and the lymphagogues of Heidenhain can be had at a very reasonable price; moreover, you know exactly what you are swallowing.

In the investigation into the composition of renal calculi, Dr. Mackarell and Mr. Thelwall Thomas were associated with Professor Benjamin Moore. In my address on the use and abuse of the lime salts in health and disease, 1910, I showed that the lime is absorbed into the system through the intestinal mucous membrane, and this is the most active agent in excreting it. Moore had shown that the neutral fats of the food are completely split up in the course of the intestinal digestion, by the lipase of the pancreatic juice, into free fatty acids and glycerin, and that the fatty acids are then rendered soluble by the bile salts and lecithin, either in the form of free acids or as alkaline soaps. So all the constituents formed in fat digestion are finally taken up by the columnar cells in soluble form.

It is not the amount of lime taken into the stomach, but the quantity absorbed that works good or ill. Professor Dixon and others hold that very little lime is absorbed, and therefore the huge and expensive quantities often prescribed can be of no use except to enrich the druggist, but I think the amount absorbed depends on the manner in which it is presented to the mucous membrane. When the insoluble fats, stearin and palmatin (which constitute the greater part of beef and mutton fat), split up in the process of digestion, the fatty acids readily combine with any lime which they meet to form insoluble soaps, and these in turn may irritate the mucous membrane and set up mucous colitis before they are discharged by the rectum. On the other hand, cod-liver oil, olive oil, butter, and bacon fat contain a large quantity of unsaturated fatty acids, which, with any alkali, including lime, form soluble soaps, and are thus readily absorbed. Therefore when you wish the patient to get a large amount of calcium you should see that he has an opportunity of manufacturing an equally large quantity of unsaturated fatty acids. Butter is much better than margarine, because it contains more unsaturated fatty acid.

I am trying to show how the uptake of calcium may be increased or diminished according to necessity, and the tendency in the present day is towards an unnecessary increase, which is much encouraged by manufacturing chemists. There is no doubt that so far as we know it, can scarcely exist without a certain amount of ionizable calcium, but you can have too much of a good thing, whether you call it a vitamin or not. When the calcium has served its purpose in the animal economy, if there be not a ready means of excretion through the kidneys or bowel, it is apt to get deposited as inert matter in the blood vessels—first deposited in the atheromatous patches as calcium soaps, and afterwards the fatty acids are replaced by phosphoric and carbonic acids. Personally I absorb lime freely and excrete it as rapidly, but I am always careful not to have too much lime in my system, except when I am undertaking hard physical work, and then it is very useful for increased metabolism. Metabolic changes are necessary for the preservation of a healthy life; and for anyone foolish enough to get an attack of pneumonia a good stock of calcium is a useful antidote.

Most vegetables, milk, cheese, and hard water contain large amounts of calcium, hence vegetarians and teetotallers—especially those who are indolent—are apt to accumulate large quantities of inert calcium in their cerebral vessels and elsewhere, such as the thyroid gland in women and the prostate in males. This can be corrected to a large extent by thyroid and iodine, decalcifying agents, and by following Arbuthnot Lane's advice, "Eat more fruit," especially acid fruit. Animals get too much lime when they are living on hay and straw without a good supply of greenstuff, potatoes, and turnips, etc. The female animals get rid of much of their surplus in the milk, which should be reserved largely for youngsters.

The kidneys excrete much more lime than many physiologists are willing to admit. At the end of last century my colleague at the Liverpool Northern Hospital, Mr. Chauncy Puzey, spoke to me about a patient on whom he operated three times in the same number of months for large phosphatic calculi in the bladder. I recommended him to make the urine acid and keep it acid with the free use of saccharin, which had been first used by the late Dr. James Little of Dublin; there were no more operations. Some time ago I said to a distinguished surgeon who had earned a well-merited reputation for removal of the prostate: "Why don't you advise your patients not to get large prostates?" He replied, "That is not my business; I leave it to faddists like yourself." I retorted, "It is a very long time since you operated on a patient of this faddist." Colonel McCarrison has taught the surgeons a very good lesson, which might with advantage be extended to the physician—namely, that prevention is better than cure. A very distinguished K.C. said to me not long ago, "Medicine is as hopeless as the Law." I replied that I knew it was bad enough, but I thought not quite so bad as what he thought.—I am, etc.,

Hindhead, June 16th. JAMES BARR.

DIET AND DISEASE

SIR,—Colonel McCarrison's lectures before the Royal College of Surgeons proved that no disease ever occurred among perfectly fed rats. Precisely the like result can be obtained with perfectly managed children. For twelve years now I have had charge of a crèche accommodating children of the poor from a few weeks to 5 years of age. This is admittedly the testing time of life. During the past six years, while the nursery has been in charge of an enthusiastic matron, Miss Chance, and a well-trained staff, disease has been almost unknown. Even the childish epidemics are warded off, or very slightly exhibited. Adenoids and tonsils and carious teeth are

almost unknown; bronchitis and convulsions have been nearly extinguished. The children all lie down and sleep on little stretchers after their midday dinners, out on the asphalt playground if the weather be fine. Milk is never diluted for the youngest infant with more than one part of water to three parts of milk, and for those aged 1 year and over it is given pure. The dietary with which these results are attained is here appended.—I am, etc.,

East Sheen, June 19th. VAUGHAN PENDRED, F.R.C.S.

Diet Sheet: Barnes and Mortlake Day Nursery

Monday.—Dinner: Raw eggs, mashed potatoes, milk, dripping, sun-maid raisins. Tea: Brown bread, margarine, marmite, lettuce, cocoa, force and milk.

Tuesday.—Dinner: Bone stock, potatoes, lentils or macaroni, steamed pudding, milk jelly, custard, etc. Tea: Bread, dripping, raisins, milk, force and milk.

Wednesday.—Dinner: Vegetable soup, young raw carrots, onions, etc., baked bread, milk pudding. Tea: Brown bread, butter, jam or syrup, cocoa, groats.

Thursday.—Dinner: Minced beef, vegetable gravy, greens, potatoes, fresh fruit (apples and oranges), raisins. Tea: Bread, dripping, young raw carrots, milk, force or shredded wheat.

Friday.—Dinner: Steamed fish, melted butter, creamed potatoes, eggs, stewed apples, grape-nuts or stewed prunes. Tea: Brown bread, butter, jam or syrup, cocoa, groats or force.

On admittance each child has either a cup of milk food, porridge, or force; bread-and-butter, according to its requirements; fruits, stewed or raw.

Vitmar is given once a day to every child (half a teaspoonful). Dinner is preceded by baked crusts.

TREATMENT OF BRAIN ABSCESS

SIR,—I have read the letter of my respected senior colleague Mr. Hugh E. Jones in the *Journal* of June 13th, and I should like to make the following points quite clear.

1. An objection which has been made to the use of the hypodermic syringe and needle in the exploratory puncture for brain abscess is that the pus might not run through the needle in a reliable manner. In practice, however, this criticism is found to be no objection at all. Any other method, therefore, of exploration which is liable to cause mutilation need not be employed. Of course, there is nothing new in needle-puncture, but it is its reliability which I am endeavouring to support. Many surgical colleagues, I feel sure, will agree.

2. Another point criticized by Mr. Hugh E. Jones is the method of drainage of brain abscess by what we may conveniently call a small drain. Here again I am supporting a method which reduces mutilation to a minimum, and I am satisfied that the mechanical principles are sound.

I do not wish to encumber these correspondence columns with detail, and if in my former letter I have proclaimed "enthusiasm" about these points, it is because I could quote my last five consecutive cases of brain abscess, finally diagnosed and treated in this way, with recovery. Four of them were of the temporo-sphenoidal variety, and the other cerebellar.

Mr. Hugh E. Jones will no doubt think this is more by good luck than by good management; but nevertheless, as Professor von Neumann states in his paper, read before the Royal Society of Medicine (February 7th, 1930), on the drainage of brain abscess:

"As every operator thinks, that he succeeds in curing cases by his own method, he is naturally inclined to keep to this method so long as his results do not differ greatly from those of others."

—I am, etc.,

Liverpool, June 14th. H. V. FORSTER.

REFRESHER COURSES FOR SHIP SURGEONS

SIR,—I was interested to read in the *Journal* of April 11th that steps have at length been taken to provide periodical refresher courses for ship surgeons. This is a procedure which I advocated ten years ago, and I was by no means the first to do so.

It is not generally realized in the profession that quite a large number of its members follow a sea-going career in the Royal Mercantile Marine, and that the conditions of service therein are vastly different from what they were twenty years ago. The day of the "dissolute, damned, and despairful" seafaring medico has passed for ever with the increase in tonnage and passenger complements of modern liners. The medical officer of a liner may have, as staff, according to the requirements of the particular service, one or more assistant surgeons, a qualified dispenser, one or more nurses, anything from two to six hospital orderlies, and hospital accommodation of from ten to sixty beds. His potential patients, including crew, may range from a thousand to four thousand souls. For all these he is medically responsible, and has no one to rely upon save himself. All the best shipping companies provide adequate supplies of drugs, dressings, instruments, vaccines, and, indeed, owing to the laws of some of the countries whose nationals are carried, a superfluous amount of medical equipment is available.

Now in my opinion the post-graduate course outlined for sea-going practitioners does not touch the essential requirements. For instance, anyone of ordinary intelligence can master, in a few hours, the quarantine regulations of the various countries, especially if, as is the custom in some companies, a book of Ships' Surgeons' Instructions is issued. Tropical diseases are not much encountered, except in pilgrim ships and those trading to the Far East. Ship hygiene, of course, differs in detail, but not in principle, from ordinary public hygiene, but can be assimilated comparatively easily. Clinical medicine is always necessary, but the bugbear of most ship surgeons is the absolute diagnosis of the exanthemata and the various forms of conjunctivitis. Foreign quarantine authorities are liable to become extremely troublesome over such cases. A knowledge of venereal diseases is very valuable. It is quite common among passengers and crew to find a few cases showing symptoms after leaving port. There is an ill-founded and quite unjust idea that venereal disease is a sort of prerequisite of the seaman's life. This is not so; the seaman is no more promiscuous in his nature than the landsman, but the life is much more trying and the temptations are very much greater.

A ship surgeon should, in addition, be fully prepared to deal with any surgical emergency which may arise. Strangulated hernia, appendicitis, perforated gastric ulcer, intussusception, volvulus, ruptured ectopic gestation, Caesarean section, mastoiditis, and compound fractures are all conditions which one is liable to encounter. Courses in operative and casualty surgery are most necessary units in any scheme of post-graduate instruction. It is a matter of reproach that London is, or at least has been up to two years ago, so niggardly in providing this—that the surgically inclined graduate has had to go to Vienna or some other centre to obtain practice.

It is needless to add that the ship's doctor is called upon to meet all kinds and conditions of people, from the Southern European peasant to members of the peerage or Royalty, as well as all nationalities. I have had to treat members of twenty-eight different nations in one day, and it is obvious that a nodding acquaintance with the medical phraseology of a few languages is desirable. Many ships carry an interpreter, and some companies pay the doctor a bonus for proficiency in each extra language.

Shipping companies are always anxious that their medical men shall keep up to date, and will always give one leave of absence for six months or so to take up residence in hospital or to do post-graduate work. Many a ship surgeon would take a house-surgeoncy once in every three or four years, but the difficulty is in getting a hospital to accept him in preference to a newly qualified man. There ought to be no reason why arrangements could not be made with a general hospital in, say, Southampton, London, and Liverpool, to recruit at least some of its housemen from the various shipping companies. That seems to me to be a scheme which would prove much more beneficial than the lukewarm type of post-graduate instruction which one usually experiences.

In conclusion, I would like to say that at no time during my service at sea did I receive anything but consideration and courtesy from both ship's complement and shore staff, and I consider that one or two years spent with a first-class shipping company is a prelude, both desirable and fitting, to a practice on shore.—I am, etc.,

E. HASLETT FRAZER,
Late R.M.S.P. Co.; P.S.N.C. Co., etc.

Sydney, N.S.W., May 21st.

GONOCOCCAL INFECTION

SIR,—In reply to Dr. Storer, might I say that if the prostate is infected with the gonococcus a positive complement-deviation test is almost an invariable result. I have yet to see a case *proved* to the contrary. The pus may be the result of either mechanical irritation—for example, excessive prostatic massage during treatment—or infection by organisms. If it is impossible to demonstrate the gonococcus in the prostatic bead or gonococcal antibodies in the blood, surely it is illogical to assume that the patient is suffering from a gonococcal prostatitis. Most of these "chronic prostates," after an attack of gonorrhoea, are the result of infection by staphylococci or one of the protean varieties of coliform bacilli, and should be treated as such. Furthermore, to identify the gonococcus in a prostatic bead by means of methylene blue in preference to Gram's stain appears to me to be a risky procedure. The isolation of the gonococcus from a prostatic bead is practicable if a hydrocele agar medium is used and the colonies are picked out by the oxidase reaction, as recorded in one of my previous letters.—I am, etc.,

I. N. ORPWOOD PRICE,
Pathologist, L.C.C. (Whitechapel) Clinic.

London, E., June 20th.

TREATMENT OF ASTHMA BY MINUTE DOSES OF TUBERCULIN

SIR,—I have been so impressed by some results obtained by treating certain cases of asthma with tuberculin in minute hypodermic doses that I venture to bring it before the notice of the profession. How or why I began this treatment I cannot say, but I believe it arose from the importunacy of one of my patients, who implored me to try some new thing for his asthma, which was rapidly making him quite unfit for work.

My records of cases, dating from 1922, show that in certain cases this treatment is of decided benefit. In all my cases I have used new tuberculin T.R. (Allen and Hanbury), giving weekly injections for four to eight weeks, commencing with 0.0000002 c.cm. and finishing with 0.0000008 c.cm. That it is not successful in all cases I am only too well aware, for I have had failures and disappointments. Nevertheless, in properly selected cases (which I think are those of a purely nervous or bronchial origin), I am convinced that great, and in many cases long-standing, relief can be given. How it acts I cannot say, but I believe relief is obtained through a protein-shock reaction.—I am, etc.,

A. TENNYSON SMITH.

Orpington, June 17th.

SCHISTOSOME WORMS AND SCHISTOSOME MONSTERS

SIR,—Referring to the letter on schistosome worms and schistosome monsters by R. L. Sheppard, which appeared in the *British Medical Journal* of May 23rd (p. 914), may we call your attention to volume v of the *Quarterly Cumulative Index Medicus*, which includes a cross reference that reads as follows: "Schistosomus: See Monsters." This is mentioned merely to indicate that our staff has been cognizant of the correct definition of the term.

More recently the *Quarterly Cumulative Index Medicus* has been prepared jointly in the Army Medical Library, Washington, D.C., and in the library of the American Medical Association. The reference to Notter's paper "Schistosomen beim Schwein," which appeared in Virchow's *Arch. f. Path. Anat.* (1927, cclxiv, 280), was an entry prepared in the Army Medical Library, where apparently the confusion in classification has been perpetuated. It is of course realized that such indexes require the services of more than a score of employees, and that an occasional error may develop in routine. The attention now called to this matter will no doubt prevent any further possible error.

This opportunity may be taken to indicate that all of the indexing for the *Quarterly Cumulative Index Medicus* will, after January 1st, 1932, be carried on in the library of the American Medical Association.—I am, etc.,

MARJORIE HUTCHINS,
Librarian, American Medical Association.

Chicago, U.S.A., June 5th.

AFRICAN TICK FEVER

SIR,—I am indebted to Dr. Nabarro for calling attention to the fact that, in my article on relapsing fever in vol. viii of the *System of Bacteriology*, I have made no mention of his observation of this disease in Uganda in 1903. In justification, however, it should be pointed out that this observation appeared in one of the reports of the Royal Society's Sleeping Sickness Commission, under the title "Further observations on the trypanosomiases (human and animal) in Uganda," by David Nabarro and Captain E. D. W. Greig, and, although dated November 20th, 1903, was not published until July, 1905, as stated in Dr. Nabarro's letter. This paper records the finding of spirochaetes in a single case of relapsing fever observed in Uganda, and is without any experimental details; also, by the time it was published, papers by A. R. Cook (*Journ. Trop. Med.*, vii, 24), and P. H. Ross and Milne (*British Medical Journal*, 1904, ii, 1453), containing details of the nature of this infection and its method of transmission by ticks, had already appeared.

Although one can sympathize with Dr. Nabarro in the loss of priority occasioned by the long delay in publication, his experience is by no means unique, and it is difficult in a brief historical summary to consider claims of priority other than actual dates of publication. However, in future editions reference will be made to Dr. Nabarro's observation.—I am, etc.,

EDWARD HINDLE.

London, N.W.3, June 20th.

Obituary

BARON SHIBASABURO KITASATO

For the following memoir we are indebted to Dr. MIKINOSUKE MIYAJIMA, member of the Kitasato Institute, Tokio, Japan:

Shibasaburo Kitasato, the founder of the Kitasato Institute of Tokio, a pioneer in the field of bacteriological research, who was one of the most outstanding figures of modern Japan, passed away suddenly, at the age of 75, on June 13th.

He was born in 1856, at Ogunigo, a mountainous village in Kiusiu, Southern Japan. After having been brought up during his boyhood by his parents in the village, he studied in the newly established medical school in Kumamoto, under Professor Mansfeld, who had come from Germany to give medical instruction in the newly founded institution. Later he went to Tokio to pursue further studies in medicine in the Government Medical School, the forerunner of the present Faculty of Medicine of the Tokio Imperial University. He completed the course in 1883, and entered the service of the Central Bureau of Public Health of the Department of Interior.

In 1885 Kitasato was sent to Germany by the Japanese Government in order to study bacteriology, which was then yet a newly established branch of medical science, under Robert Koch, the father of bacteriology. He devoted himself to careful studies in this new field, and succeeded in obtaining the pure culture of the tetanus bacillus. Furthermore, he proved the fact that the antitoxin produced in the animals which were immunized against tetanus toxin was a specific therapeutic agent. Kitasato's work on tetanus was published conjointly with the work of von Behring on diphtheria, under the title of "Immunization of diphtheria tetanus." Thus serotherapy was established, and by their discoveries the whole world was benefited. While he was thus pursuing his work under Koch as an assistant, particularly in the field of study of tuberculosis, his term to stay abroad expired, and he would have been obliged to return to Japan, but the Emperor of Japan, hearing of Koch's earnest desire to retain his assistant, granted Kitasato a fund which enabled him to continue his study in Koch's Institute, under the Imperial patronage. After seven years' sojourn in Germany he returned to his native country in 1892. At that time the German Government conferred on him the title of "Professor," the first honour given to a foreign scientist by the German Government.

By the generosity of Yukichi Fukusawa, one of the greatest figures in the Meiji era, Kitasato established a laboratory for the study of bacteriology, which was the first institution for scientific research in Japan. This laboratory was later on brought under the control of the Hygiene Society of Japan, and slightly enlarged. Since then, by continual enlargement and by the increase of materials for research, the laboratory became an institute for the centre of research, with well-equipped laboratories in which researches in bacteriology and the study of infectious diseases made steady and firm progress. Recognizing the services rendered by this institution, the Government granted financial aid, and the new institute was built. Soon after, in 1899, the institute was completely taken over by the Government and brought under the control of the Minister of Interior. The work of the institute, organized and directed by Kitasato, was enlarged, and, finally, the vaccine lymph farm and the serum institute, both of which had been established by the Government, were amalgamated with the Institute for Infectious Diseases under Kitasato. The new buildings were erected at Shirokane-daimachi in 1905. At this period the institute had issued the results of several important researches in bacteriology. At the same time Kitasato found himself abroad again on various missions which the Government asked him to undertake. It is particularly worth mentioning here that he went to Hong-Kong in 1894, and made the discovery of the *Bacillus pestis* during an epidemic of bubonic plague. In 1911 he went to Manchuria to study the preventive measures of pneumonic plague whilst there was the most violent epidemic experienced in recent years. At the International Plague Conference, held at Mukden, Kitasato was elected its president to take charge of this important work. On several occasions he went to Europe and America to attend international scientific congresses. Kitasato always had in his mind a firm belief that his mission in life was that of scientific investigation and the advancement of public health. Thus he continued his study on tuberculosis until the end of his life.

In 1914 the Imperial Institute for Infectious Diseases, which Kitasato had established and directed, was transferred suddenly to the control of the Minister of Education, and later was amalgamated with the Tokio Imperial University. This administrative change was carried out without consulting its founder and director. Thereupon Kitasato resigned without hesitation the directorship, followed by all the members of the institute, who also resigned their office.

In order to continue his life-work, Kitasato established a private institute, known as the Kitasato Institute, in co-operation with his well-trained and faithful pupils. Though a new organization, it was in reality the continuation of the institute which had been established some twenty-five years before. The small institute building erected in 1914 in a corner of Shirokane Sankocho has since grown into the present establishment under its trusted founder and director. While he was engaged in the work of the new institute he was invited by the Keio-Gijiku University, the founder of which was Yukichi Fukusawa, to organize a new medical faculty. Kitasato accepted the offer, and organized the Faculty in 1910. Since its beginning it has made steady progress, and is now counted among the most prominent centres of medical education in Japan. Kitasato resigned from his post as dean of the Medical Faculty, and Dr. Kitashima, his lifelong associate, succeeded him.

In 1917 the Emperor appointed Kitasato a member of the House of Peers for his distinguished public service, and he entered into political life. For a number of years he endeavoured to introduce a Bill into Parliament with the view of organizing on a legal basis the medical practitioners' association of Japan, which was finally approved by both Houses of the Diet, and the association was organized. According to this law all the physicians in Japan are controlled and united in that organization. Since the creation of the association some ten years ago he served it as its president. In recognition of his merits in science and in public service for improving the national health Kitasato was elevated to the peerage and made a Baron in 1924. His scientific achievements and his valuable contribution to the welfare of human life were not only recognized in his native country, but in other countries as well. Many learned societies in foreign countries conferred honours upon Kitasato by granting

him their fellowship or membership. The following may be mentioned: Member of the Imperial Academy of Japan, Foreign Member of the Royal Society of London, Ehrenmitglied der Preussischen Akademie der Wissenschaften of Berlin, Associé Etranger de l'Académie de Médecine de France. He won the Harben Gold Medal of the Royal Sanitary Institute of London.

All of us who have associated with him in his life-work hoped that Kitasato might yet live long years and guide us with his master mind to greater progress in medical science and public health. But alas! his sudden departure has deprived us of one of the most distinguished and influential leaders in scientific as well as social circles in modern Japan. In recollecting the dominant characteristics of this great man I may mention some of his traits which have left on us the deepest impressions. Kitasato was a man of filial affection toward his parents and a devoted follower of his teacher. While Koch was in Japan, Kitasato always attended his teacher with the utmost care as though serving his own father. When Koch died, Kitasato built a shrine in the inner court of the institute in remembrance of his great teacher. Each year, on the day of Koch's death, Kitasato commemorated with an appropriate Shinto ceremony the memory of the departed soul. Now he himself has passed beyond the horizon of life the two great souls may meet in eternity. Beyond the changes which may come to human life and institutions, the spirit of the great man lives for ever.

The following well-known foreign medical men have recently died: Dr. KAREL CHODOUNSKA, emeritus professor of pharmacology at the medical faculty of the Karl University, Prague, aged 88; Dr. MAX NASSAUER, a Munich gynaecologist; Professor ROBERT DREYFUSS, a Frankfort otologist; Professor GEORGE KOBER of Washington, author of works on tuberculosis, aged 81; Dr. JEAN GAREL of Lyons, a former president of the French Society of Oto-rhino-laryngology, aged 79; Dr. OTTO KÜSTNER, formerly professor of obstetrics and gynaecology at Breslau, aged 82; Dr. MAX BRÜCKNER, for many years director of the Children's Hospital at Dresden, aged 67; Dr. LUCIUS STOLPER, a Vienna gynaecologist; and Professor ALESSANDRO REGNOLI, senior physician to the San Giovanni Hospital of Rome and an eminent obstetrician, aged 71.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on June 23rd, the following medical degrees were conferred:

M.B., B.CHIR.—H. P. Hutchinson, C. B. Prowse.
B.CHIR.—*G. Rocyn-Jones, C. Arthur.

*By proxy.

UNIVERSITY OF LONDON

At a meeting of the Senate, on June 17th, the Rev. J. Scott Lidgett was re-elected Vice-Chancellor for the year 1931–32, and Canon J. A. Douglas was appointed Deputy Vice-Chancellor.

Mr. H. L. Eason, C.B., C.M.G., was appointed a member of the Court for five years from October 1st next.

Dr. Millais Culpin has been appointed to the University Chair of Medical Industrial Psychology at the London School of Hygiene and Tropical Medicine, from August 1st.

UNIVERSITY OF GLASGOW

A ceremony of graduation was held in the Bute Hall on June 17th, when the Chancellor, Sir Donald MacAlister of Tarbert, presided. The following were among the degrees conferred:

LL.D. (HONORARY).—Sir Frederick Gowland Hopkins, Sc.D., F.R.C.P., President of the Royal Society; Professor Cornelius Ariëns Kappers, M.D., director of the Central Institution for Brain Research, Amsterdam.

M.D.—*J. W. S. Blacklock, †Margaret Wylie Thomas, ‡J. S. Craig, ‡A. Mellick, ‡W. A. Ramsay, H. Baxter, J. Cook, Gladys Montgomery, S. R. Wilson.

*With Honours. †With High Commendation.
‡With Commendation.

UNIVERSITY OF LIVERPOOL

Dr. H. Leith Murray has been appointed to the Chair of Midwifery and Gynaecology as from October 1st, 1931, in succession to Professor W. Blair Bell.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—O. A. P. Clark, A. J. P. Coetzee, S. D. Jouhar, J. L. F. King, R. Pakenham-Walsh, T. L. O'C. Ryan.
MEDICINE.—O. A. P. Clark, A. K. Guha, S. D. Jouhar, D. M. Nightingale, S. H. Thaler, C. F. Williamson.
FORENSIC MEDICINE.—G. R. Germany, A. K. Guha, S. D. Jouhar, D. M. Nightingale, T. L. O'C. Ryan, E. S. St. John.
MIDWIFERY.—A. K. Guha, O. L. Matthews, B. Rivlin, R. Schauder, E. Teplitzky, K. G. Wrigley.

The Diploma of the Society has been granted to Messrs. A. J. P. Coetzee, S. D. Jouhar, D. M. Nightingale, R. Pakenham-Walsh, T. L. O'C. Ryan, and S. H. Thaler.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons this week authorized a further loan to the Unemployment Insurance Fund and debated the Government's Bill to deal with anomalies of unemployment insurance. The committee stage of the Finance Bill was completed. Scottish Estimates were also down for discussion. On the Finance Bill Mr. Snowden brought forward an amendment altering the exemption of charities from land values taxation. He proposed to substitute the general definition of charities which appears in the Income Tax Acts instead of the specific exemption of hospitals and other subjects which he had originally proposed.

The Proprietary Medicines Bill, introduced by Mr. Somerville Hastings, has been dropped.

In the House of Lords, on June 23rd, the Mining Industry (Welfare Fund) Bill was read the third time and passed.

A meeting of the National Medical Service Association has been arranged at the House of Commons, on July 9th, to consider hospital policy. The same body met at the House, on June 17th, and decided to apply for affiliation to the International Association with the same object.

The Rent (Reduction and Control) Bill and the Petroleum Bill were read a second time by the House of Commons on June 19th.

National Health Insurance Benefits

In reply to Sir Kingsley Wood, on June 18th, Mr. GREENWOOD said no further regulations were in contemplation to protect the funds of approved societies against improper claims, but his department would continue to keep a careful watch over the expenditure of approved societies on sickness and disablement benefit, and would take any steps desirable to maintain a high standard of efficiency in medical certification and in the supervision of claims by societies.

Foot-and-Mouth Disease

Dr. ADDISON, on June 22nd, told Lieut.-Colonel Heneage that thirty-five outbreaks of foot-and-mouth disease had occurred since June 17th, in addition to five in the previous part of the year. The landing of all cattle, sheep, goats, and swine from Ireland was prohibited on June 17th, when the disease was discovered among Irish animals landed on June 11th. He issued, on June 19th, a standstill Order controlling the movement of all animals throughout Great Britain. Restrictions would be removed from areas which proved not to be infected as soon as that course could be taken with safety. Up to that morning, thirty-three outbreaks had been confirmed since June 17th.

Psittacosis

Replying to Mr. Hannon, on June 18th, Mr. GREENWOOD said he was not yet able to remove or modify the import prohibition on parrots and kindred birds. Before considering the question of removing the prohibition on the importation of birds of the parrot species, he had to be satisfied that the risk of the spread of psittacosis through the importation of these birds had disappeared, or had diminished to such an extent as to render it safe to rescind or modify the regulations issued in 1930. All relevant facts, including the collection of data from the foreign countries concerned, were receiving the attention of his department.

Conditions in Nairobi Hospital and Gaol

On June 17th Mr. LUNN, replying to Mr. Ormsby-Gore on the subject of the report of the Government European Hospital at Nairobi, Kenya, said that the Government of Kenya had not yet forwarded the report referred to, but that the recommendations contained therein regarding accommodation of the nursing staff and the replacement of the existing buildings by a more modern type of hospital for Government officials and Europeans of small means would no doubt be discussed in the Governor's report.

In reply to Mr. C. Williams, Mr. LUNN said that attention had been called to the need of increased hospital accommodation at Nairobi for Europeans, Asiatics, and natives. In the further loan requirements of the Government of Kenya a sum of £70,000 (exclusive of establishment charges amounting to £10,500) for hospitals for Europeans, Indians, and Africans at Nairobi had been approved. The provision of facilities would be proceeded with as rapidly as circumstances permitted.

In a further reply to Mr. Ormsby-Gore, Mr. LUNN said that the Under-Secretary of State for the Colonies was aware of the unsatisfactory conditions at the Nairobi prison, and of the bad lighting and ventilation of these buildings, but general improvements, and steps to secure further improvements, were in process, and approval had been given for the allocation of a sum of £95,000 for prison accommodation. There were ten deaths from tuberculosis in Nairobi prison in 1928 and in 1929.

Consumption of Opium in India

Mr. BENN, on June 22nd, informed Major Pole that, after a conference of local Governments in India on the reports of the special local inquiries into the causes and possibility of reducing the consumption of opium, the Government of India recommended all local Governments to make an analysis of the figures of consumption in districts where that was known to be high. They also recommended the local Governments to obtain more exact information of the extent to which opium was given to children, to experiment with rationing and registration of consumers, to attempt to equalize the sale price of opium on interprovincial boundaries, and to consider the possibility of propaganda and welfare work on the administration of opium to children.

Maternity and Child Welfare in Africa.—Replying to the Duchess of Atholl, on June 17th, Mr. LUNN said child welfare services existed, and native women were being trained as midwives, in all the tropical African Dependencies, with the exception of Somaliland and Gambia. These services were open to all native women, irrespective of their tribal origin. Maternity and child welfare clinics and training in midwifery were at present available only at the more populous centres.

Accident Statistics (R.A.F.).—Mr. MONTAGUE told Mr. Beckett, on June 17th, that during this year there had been fifty-two accidents to Royal Air Force aeroplanes involving casualties to personnel, the total number of such casualties being eighty-seven. Of these, forty-one were cases of injury and forty-six of loss of life.

Millman Street Hospital, Chelsea.—In reply to Dr. Morgan, on June 18th, Mr. GREENWOOD said the London County Council Hospital, Millman Street, Chelsea, was under the administrative control of a medical superintendent, and a medical officer visited the hospital daily. There were a resident matron, a superintendent sister, and ten nurses. The number of beds was fifty. Only one complaint had been brought to the notice of the London County Council during recent months, and on investigation this complaint was not considered to be justified. For the six months ended May 31st last the number of patients who were removed from their London homes to this hospital for the treatment of tuberculosis, or for observation, was 178, and the average duration of stay of the patients discharged during this period was fifty-six days. Dr. MORGAN asserted that to move patients to such a district was not the most modern method of treating tuberculosis. Mr. GREENWOOD replied that this hospital was used as a clearing-house. Dr. MORGAN asked whether fifty-six days was too long a time for stay in a clearing-house. Mr. GREENWOOD did not reply.

Imported Skimmed Milk.—On June 18th, in reply to Mr. Perkins, Mr. GILLETT stated that, under Public Health Regulations, condensed skimmed milk imported into this country must be marked "Unfit for babies." Figures of the imports of milk so marked were not available, but the declared value of the total imports of sweetened condensed milk, separated or skimmed, registered as consigned from foreign countries was £2,691,513. The corresponding figure in respect of unsweetened condensed milk, separated or skimmed, could not be stated. Mr. YOUNG put a supplementary question suggesting that milk marked "Unfit for babies" was really unfit for human consumption, though it was bought in large quantities by poor people. Mr. GILLETT referred Mr. Young to the Minister of Health.

Experiments on Animals.—Mr. CLYNES, replying to Mr. Freeman on June 23rd, said that the names of all licensees of experiments on living animals, with their degrees and the registered places for which their licences were available, were published in the annual return. It would be impracticable to include reports of experiments in the annual return.

The Services

INDIAN MEDICAL SERVICE

ANNUAL DINNER

The annual London dinner of the Indian Medical Service was held at the Trocadero Restaurant on June 17th, under the chairmanship of Colonel R. A. Needham. The attendance was the largest in the history of these dinners. The guests were Mr. F. H. Brown, C.I.E., Dr. N. G. Horner, Editor of the *British Medical Journal*, and Dr. E. C. Morland of the *Lancet*, together with the ten I.M.S. officers now on probation at the Royal Army Medical College, Millbank.

The chairman, in proposing the toast of "The Indian Medical Service," welcomed, among those present, ten officers on probation, and read a message received from the Director-General I.M.S., that, though conditions in India had changed and would continue to change, new entrants would still find in India excellent prospects of a career. The I.M.S. flag was still flying Recruits of the right sort were needed. The faint-hearted should, however, stay at home. Colonel Needham suggested that an encouraging reply should be sent, promising support from the officers at home. In his remarks on the position of the I.M.S. at the present time, Colonel Needham referred to the evidence and findings of the Royal Commissions and committees which, during the past twenty years, had considered the constitution of the medical services in India, and possible changes of organization. He described the present constitution as a military service with a proportion of its officers withdrawn for civil duties to form a war reserve and to provide attendance on Europeans. A constitution of this kind would be found necessary under a Federal Government, whether the name Indian Medical Service was retained or not, if the new Government desired to maintain an efficient medical service for the Indian Army or discharge essential civil obligations satisfactorily. Nor was a central service, as some people too readily assumed, incompatible with autonomy in the provincial medical services already in being, or with progressive Indianization. The Services Subcommittee of the Round Table Conference had reported that in future, in its opinion, there should be no civil branch of the I.M.S. This opinion envisaged a complete reversal of policy. The civil branch, if abolished, would leave the I.M.S. as an Indian Army Medical Service to which few, if any, Europeans would be attached. The Army authorities

had not been consulted. They were vitally concerned in a policy which might affect recruitment of British officers for the combatant branches of the Indian Army. Perhaps the wide implications had not been fully stated or appreciated in the political atmosphere of the Round Table Conference. The Simon Commission had reported that a failure of recruitment for the I.M.S. would be disastrous for India, and also that a medical service recruited provincially would be no substitute for one with the exceptional standards and traditions of the Indian Medical Service.

Lieut.-Col. J. K. S. Fleming, in proposing the health of the chairman, said that Colonel Needham's services were written large on recent pages of the history of the I.M.S., and his hard work on its behalf was appreciated by all his brother officers. In the absence of Lieut.-Col. J. Anderson, through illness, Colonel J. J. Pratt proposed the health of the honorary secretaries, Colonel T. A. Granger and Sir T. Carey Evans, and paid tribute to them for the excellence of the dinner and the large attendance.

The following is a list of the officers present.

Major-Generals: Sir Havelock Charles, Bt., G.C.V.O., K.C.S.I., A. A. Gibbs, J. D. Graham, C.B., C.I.E., K.H.S., Sir Courtenay Manifold, K.C.B., C.M.G., Sir Leonard Rogers, C.I.E., F.R.S., G. Tate, C.I.E.

Colonels: H. Ainsworth, R. F. Baird, J. Fuller-Good, V.H.S., C. M. Goodbody, C.I.E., D.S.O., T. A. Granger, C.M.G., J. A. Hamilton, C.M.G., J. Husband, I. Davenport Jones, W. H. Leonard, K.H.P., J. J. Pratt, A. Spitteler, O.B.E., F. Wall, C.M.G., C. N. C. Wimberley, C.M.G.

Lieutenant-Colonels: A. W. Alcock, C.I.E., F.R.S., G. P. Alpin, O.B.E., J. Anderson, C.I.E., F. A. Barker, O.B.E., G. T. Birdwood, H. H. Broome, C.I.E., S. H. Burnett, J. T. Calvert, C.I.E., H. P. Cook, D. G. Crawford, J. M. Crawford, O.B.E., H. J. M. Cursetjee, D.S.O., E. E. Doyle, C.I.E., D.S.O., H. R. Dutton, C.I.E., S. Colin Evans, J. K. S. Fleming, C.B.E., B. Gale, C. A. Gill, D. Heron, C.I.E., E. V. Hugo, C.M.G., M. L. C. Irvine, S. P. James, L. H. Khan, H. C. Keates, H. H. King, R. Knowles, J. C. G. Kunhardt, W. B. Lane, C.I.E., C.B.E., E. C. G. Maddock, C.I.E., W. A. Mearns, F. O. N. Mell, C.I.E., G. McG. Millar, O.B.E., A. Miller, T. R. Mulroney, F. O'Kinealy, C.I.E., C.V.O., A. H. Proctor, D.S.O., Norman R. J. Rainier, A. J. H. Russell, C.B.E., G. M. C. Smith, C.M.G., R. Steen, J. Stephenson, C.I.E., T. G. N. Stokes, Ashton Street, W. A. Sykes, D.S.O., C. Thomson, Sloane G. Thomson, R. S. Townsend, M.C., E. L. Ward, C.B.E., D. P. Warliker, W. L. Watson, O.B.E., W. E. R. Williams, O.B.E., N. M. Wilson, O.B.E., H. R. Woolbert, H. G. L. Wortabet.

Majors: F. J. Anderson, M.C., A. C. L. Bilderbeck, Norman Briggs, H. C. Brown, C.I.E., Sir T. Carey Evans, M.C., E. S. Goss, M.C., J. H. Hislop, M.C., A. C. Macrae, J. J. Rooney, H. M. Salamat Ullah, R. L. Vance, W. J. Webster, M.C.

Captains: J. L. Donnelly, T. A. Doran, G. M. Irvine, M. V. Taylor, S. C. H. Worseldine.

Officers on Probation: Lieutenants M. Kirk Bryce, G. K. Graham, J. Guthrie, H. B. Macevoy, M. M. Mansfield, J. L. O'Neill, M. H. Shah, W. J. Stewart, B. Temple-Raston, A. W. West.

DEATHS IN THE SERVICES

Lieut.-Colonel Stanley Trefusis Crump, Indian Medical Service, was accidentally killed by a fall from the lift of the Dufferin Hospital, Rangoon, of which he was superintendent, on April 21st, aged 52. He was born on November 13th, 1878, was educated at Leeds, and took the M.R.C.S. and L.R.C.P.Lond. in 1904. Entering the Indian Medical Service as lieutenant on February 6th, 1906, he became lieutenant-colonel after twenty years' service. After a few years' military duty he entered civil employ in Burma in 1910, as medical officer of Rangoon General Hospital. During the war he was recalled to military duty, from 1915 to 1919; in the latter year he returned to Burma as civil surgeon of Rangoon, and in 1929 was appointed superintendent of the Dufferin Hospital, and gynaecologist.

Lieut.-Colonel Andrew Hosie, C.M.G., R.A.M.C. (ret.), died at Sandown, Isle of Wight, on April 6th, aged 71. He was born at Inverurie, Aberdeenshire, on February 7th, 1860, and was educated at Aberdeen University, where he graduated as M.B. and C.M. in 1883, as M.D. in 1885, and as D.P.H. in 1903. Entering the R.A.M.C. as surgeon on July 28th, 1886, he became lieutenant-colonel after twenty years' service, and retired on October 13th, 1906. After retirement he was employed at Sandown, Isle of Wight, from 1908. He served in West Africa, in the Sierra Leone expedition of 1898-99, as senior medical officer of the Falaba column, gaining the medal and clasp; in South Africa in 1900-2, in operations in Cape Colony and the Orange River Colony, receiving the Queen's and King's medal, with two clasps to each; and rejoined on August 5th, 1914, for the war of 1914-18, when he served with the Mediterranean and Egyptian Forces, was mentioned in dispatches in the *London Gazette* of July 6th, 1917, and received the C.M.G. on June 4th, 1917.

Medical News

Dr. J. Bernard Dawson, F.R.C.S., has been appointed to the new chair of midwifery and gynaecology in the University of Otago, New Zealand. Dr. Dawson was educated at the University of Birmingham and at St. Bartholomew's Hospital, and graduated M.D.Lond. in 1911. He is at present honorary assistant gynaecologist to the Adelaide Hospital, and honorary medical officer to the Queen's Maternity Home, Adelaide.

H.R.H. Princess Alice, Countess of Athlone, will open the new nurses' home at the Middlesex Hospital on Monday next, June 29th, at 3 o'clock.

The jubilee celebrations of the Incorporated Midwives Institute will be held at Bedford College, Regent's Park, N.W., on Saturday, July 4th, at 3.30 p.m. The speakers will include the Marchioness of Salisbury and Mr. Comyns Berkeley.

Founders' Day at Epsom College will be celebrated on Saturday, July 25th, when the Bishop of Guildford will present the prizes.

A post-graduate course, arranged by the Welsh National School of Medicine and the Maternity and Child Welfare Group of the Society of Medical Officers of Health in co-operation with the Fellowship of Medicine, will be held at Cardiff on June 29th and 30th, in connexion with the National Conference on Maternity and Child Welfare, organized by the National Association for the Prevention of Infant Mortality. The fee for the course is 10s., and should be sent to the secretary, Fellowship of Medicine, 1, Wimpole Street, W.1.

Detailed information about the lectures and demonstrations arranged for next week by the Fellowship of Medicine and Post-Graduate Medical Association will be found at page 276 of the *Supplement*. Syllabuses and tickets for all the courses may be had from the Fellowship of Medicine, 1, Wimpole Street, W.1.

The eighteenth annual meeting of the Swiss Society for Surgery will be held at St. Moritz on July 10th and 11th.

At the June meeting of the Central Midwives Board for England and Wales the report of the standing committee included a letter from the Clerk of the London County Council conveying, for the information of the Board, a copy of a report of the Midwives Act Committee of the Council, on the subject of the general standard attained by midwives in London. A letter from the medical officers of health for Norwich asked for the opinion of the Board as to whether a midwife who lays out the dead body of a stillborn child, as defined in the Births and Deaths Registration Act, 1926, should send in a form of notification of having laid out a dead body, to the local supervising authority, in accordance with Rules E.18 and 22 (*d*). The Board directed that a reply be sent that strictly the term "dead body" in Rule E.18 covers the dead body of a stillborn child.

The second International Congress of Comparative Pathology will be held in Paris under the presidency of Professor C. Achard from October 14th to 18th, when the following subjects, among others, will be discussed: human and animal brucelloses, milk as a pathogenic agent, ultra-viruses, cancer, psittacosis, anaphylaxis, and treatment of helminthiasis. The subscription is 100 francs. Further information can be obtained from the general secretary, M. C. Grollet, 7, Rue Gustave Nadaud, Paris, XVIe.

The twelfth Salon des Médecins for the exhibition of pictures, sculpture, engravings, and decorative art by medical practitioners, pharmacists, veterinary surgeons, students, and members of their families will be held at 17, Boulevard Saint Germain, Paris, from October 4th to 13th. Further information can be obtained from the organizing secretary, Dr. Paul Rabier, 84, Rue Lecourbe, Paris XVe.

The Royal Society held a conversazione at Burlington House on the evening of June 24th. The guests were received by the President, Sir Frederick Hopkins, and Lady Hopkins. During the evening demonstrations were given of cinematograph films, in natural colours, showing the new process of colour photography, on non-inflammable film, described in our report of the May conversazione. The exhibits included dark-ground ultra-violet photomicrographs, by Mr. J. E. Barnard, of the causative organism in infectious ectromelia of mice; specimens of ancient fats ("bog butter") excavated from Irish bogs, by Drs. A. Scott and H. J. Plenderleith; an automatic projection microscope shown by Professor H. Hartridge; casts of the fossil remains of the Peking skull and its component parts, made by Professor Davidson Black, and shown by Professor G. Elliot Smith; and an exhibit by Dr. Honor Fell of the Strangeways Research Laboratory, showing the development and regeneration *in vitro* of periosteal bone.

The second International Congress for Tropical Medicine will be held at Amsterdam under the presidency of Professor Grijns from September 12th to 17th, when the subjects for discussion will be: (1) avitaminosis, especially beri-beri; (2) leptospira and yellow fever; (3) worms, especially ankylostoma; (4) malaria, blackwater fever, protozoal blood diseases, and kala-azar.

The fifth International Congress of the Collegium Oto-rhino-laryngologicum will be held at Bordeaux from July 19th to 22nd, under the presidency of Professor Portmann. The subjects for discussion are: radio-sensibility of tumours of different histological structure, introduced by Dr. Ledoux of Brussels; and correlations of histological observations with the activity of hearing, by Dr. Guild of Baltimore. The countries taking part in the congress are Austria, Belgium, Canada, Czechoslovakia, Denmark, Finland, France, Germany, Great Britain, Holland, Hungary, Jugoslavia, Norway, Spain, Poland, Soviet Russia, Switzerland, and the United States of America.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBERS** of the British Medical Association and the *British Medical Journal* are *MUSEUM* **9861, 9862, 9863,** and 9864 (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is **16,** South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, **7,** Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS

Medical Treatment of Duodenal Ulcer

"DUODENUM" (Scotland) writes: I have had recently, for the fourth time in ten years, an attack suggestive of duodenal ulcer—hunger pain, the stomach emptying rapidly with violent peristalsis, nothing definite to *x*-ray examination at the duodenum, no occult blood in stools. Perhaps some reader can advise on the following points: (1) Some doctors advise a meat diet because the meat "fixes" the acid; others stop all meat and give carbohydrates; I find that a good meal of any reasonable kind gives me comfort. (2) Olive oil before food is found helpful; would liquid paraffin have the same acid-inhibiting effect and be less fattening and less likely to cause nausea and biliousness? (3) Is the practice of taking the usual alkaline powder after food the right one? At that time the food is "fixing" the acid; the alkali will be useful much later when the digestive process is nearer an end. (4) Is there ground for thinking that the prolonged taking of alkalis as recommended will lessen radically the hyperacidity?

Effect of Prolonged Injections of Insulin on Subcutaneous Tissue

Dr. W. W. JEUDWINE (Newport, I.W.) writes: A patient, aged 32, suffering from diabetes, has been giving herself injections of insulin 1 c.cm. (20 units) into the subcutaneous tissue on the front of the upper part of the right thigh every morning, and 1/2 c.cm. (10 units) into the corresponding site of the left thigh every evening for the last twelve months. A week ago, on coming to see me, she asked whether the injections caused the muscles to waste. On examination I found that there was an area as large as the palm of my hand on both thighs where injections had been made, over which all the subcutaneous tissue had disappeared and the dense fascia was felt just under the skin. The edges of the area were apparently raised, so that the impression was one of a shallow pit with well-defined margins. Is this an unusual occurrence, or has insulin the effect of causing absorption of fat when injected for a long period over the same area?

Scleroderma with Pernicious Anaemia

Dr. A. PATTON (Widnes) writes, in reply to Dr. Barcroft Anderson (p. 1100): Sugar tolerance has not been estimated in my patient. Pellagra is a very interesting, though unlikely, suggestion. Gastric and mental symptoms have been conspicuously absent, except for the achlorhydria.

Urticaria

Dr. MORRIS CUTNER (Chelsea, S.W.) writes: In reply to the request of "Practitioner" (Scotland) in the *Journal* of June 20th (p. 1029), I would suggest the use of collosol manganese, intramuscularly, commencing with 1/2 c.cm. the first day, 1 c.cm. on the fourth and ninth days, and then at weekly intervals for five or six weeks, as the condition demands. By this method I was recently enabled to control, in a woman aged 39, a severe case of recurrent giant urticaria, which had persisted for three months despite intense calcium medication, with and without parathyroid, and the use of an autogenous vaccine. A slight improvement was noticed after the first injection, and this was followed, with further injections, by a gradual diminution in the intensity and frequency of the eruption, so that early in January last the injections were stopped. A mild recurrence in March was controlled by one injection of 1 c.cm., and there has been no further recurrence since.

Dr. ELEANOR PULLEINE (St. John's Wood, N.W.) writes: May I suggest that "Practitioner" tries intramuscular injections of the patient's own blood, starting with 5 c.cm. and increasing to 10 c.cm., at intervals of five to six days?

Income Tax

Sale of Property

"H. A. C." was the owner of a house which was let to a tenant up to November, 1930, and empty to February, 1931, when it was sold. "H. A. C." paid the income tax charged on the property for the year to April 5th, 1931, and has been repaid the amount applicable to the period when the property was empty, but not for the period for which the new ownership applied. Is that correct?

*** Yes. Tax under Schedule A—that is, income tax paid on property—is due in January for the year to the following April 5th, and the then owner is liable to pay the amount due, or suffer it by deduction from his rent. In the event of a subsequent sale, the fact that the vendor has paid tax for a period applicable to the purchaser's ownership should be taken into account in adjusting the settlement between them. We gather that the local official seems to have agreed that the purchaser might be assessed separately for the period subsequent to the date of purchase, but we do not see how this could happen. Change of ownership of property is no occasion for a new assessment, and any separate charge would be a double assessment. Incidentally, if any such assessment were made and the tax thereon was paid by the purchaser, it would give the vendor good ground for claiming repayment of that portion of the tax paid by *him* which referred to the vendor's ownership.

Motor Car Transactions

"J. A. L." bought an "F" car in 1924, and still has it for occasional use. In 1927 he bought an "A" car for £162, but it was badly damaged in 1929 and was realized for £40 from the insurance company and £25 from an agent, and "J. A. L." bought a second "F" car for £175. He had an allowance of £39 in 1929 and £48 in 1930 in respect of depreciation. What can he claim for "obsolescence"?

*** The fact that "depreciation" was claimed does not put an obsolescence claim out of court—in fact, the latter is really supplementary to the former claim. The only difficulty about an obsolescence claim in the circumstances is that the replacement of the "A" car was necessitated rather by accident than age, but it is not likely that that objection will be raised, or at any rate pressed by, the inspector of taxes. The amount of the claim should be £162 – (£40 + £25 =) £65—that is, £97, less such portions of the two depreciation allowances as are in respect of the "A" car.

Remittances from Abroad

"A. R." holds an appointment in the Indian Medical Service. He bought a house in this country some time ago. What will be his position if he returns to India, but retains the house for his wife's use for part of each year?

*** For any financial year in which "A. R." spends any time in the United Kingdom all remittances from foreign or colonial income are liable to British tax. For any year during which he (or his wife) has a residence here, but in which he himself spends no time, his wife is liable to assessment as a feme-sole in respect of any income received by her in the United Kingdom to which she has a legal title (Derry *v.* Commissioners of Inland Revenue), or what is remitted to her out of any "property" of the husband outside the United Kingdom. In our view, remittances made to the wife out of the *earnings* of the husband, in a financial year during the whole of which the husband is absent from the United Kingdom, are not made out of "property," and are not liable to British income tax.

LETTERS, NOTES, ETC.

A Simple Method of Measuring Noise

London noises were measured some eighteen months ago by Dr. A. H. Davis of the National Physical Laboratory, Teddington, by a novel method which is surprisingly simple. He described his procedure on June 19th during a discussion on "Audition" held by the Physical Society of London, in which various British and Continental authorities took part. A tuning-fork having a pitch in the third octave above the middle C on the piano was struck in a standard manner and placed to the ear. Observation was then made of the time which elapsed before the loudness of the fork fell to the loudness of the observed noise or, alternatively, until the sound of the fork was no longer audible in the presence of the noise. On this scale sounds become painful at about 120 "degrees" above the threshold of hearing, where each degree, known as a "decibel," is the least change of loudness perceptible to the ear. In descending order of loudness Dr. Davis placed the noises of aero engines (110 decibels), pneumatic drills (90), busy traffic (70), side streets in London (50), rustling leaves (30), suburban quiet (20), and silence (0). The loudness of ordinary conversation was about 50 decibels above threshold. This simple method has been found to give results consistent with those obtained with much more elaborate apparatus.

A Substitute for Hand Towels

"F. D." writes: In connexion with the letter by "D.P.H.," which appeared on page 1050 of the *Journal* of June 13th, it would appear that this medical man is one of those who are blind to the advantages to be obtained at home, whilst full of admiration for the same advantages when discovered abroad. Machines for drying the hands by blasts of warm air have been demonstrated at the British Medical Association Exhibitions, and have been advertised in the columns of the *British Medical Journal* for some years past, and even as recently as the issue of March 21st, 1931.

*** Several other correspondents have written to us drawing attention to appliances obtainable in this country. It appears that there are a number of devices on the market suitable for drying the hands in cloakrooms, and also in operating theatres. Dr. F. A. E. SILCOCK (Leicester), after referring to one type of machine which he has seen in use in England during the past two years, writes: "A cheaper substitute for private professional use can be arranged, if one wants to dry the hands prior to any aseptic work, by utilizing the current of warm air from an ordinary electric hair dryer and blower combined, such as is used by many hairdressers, and costing about 35s. After a preliminary washing, followed by rinsing in spirit, the hands can be exposed to this current, which soon dries them. I agree with 'D.P.H.' that it is a more hygienic, and in a large institution possibly a more economical, way of drying one's hands."

Femoral Thrombosis in Pneumonia

Dr. H. M. JAQUES (Burnham, Bucks) writes: The comparative rarity of femoral thrombosis as a complication of pneumonia has prompted me to report this interesting case. On May 9th the patient, a very stout woman of 49, went down with a typical right basal pneumonia. On the eighth day she had a pseudo-crisis, her temperature subsequently falling by lysis. Suddenly, during the night of the 20th, the patient was seized with acute pain in the right leg, which rapidly swelled to an enormous size, and in spite of complete immobilization of the limb on May 31st (the twenty-third day of her illness) she died of a pulmonary embolism following thrombosis of her right iliac vein.

Definition of "Cancer"

"K." writes: A patient recently had her breast removed for cancer. She was aware of the diagnosis. On her return home she casually picked up a copy of the *Pocket Oxford Dictionary* (Clarendon Press, 1925) and looked up the definition of the word "cancer." She read the following: "Malignant tumour spreading indefinitely & recurring when removed." She was greatly upset. Surely this definition should be modified.

A Cocoa and Chocolate Centenary

On June 19th the house of Cadbury Bros. Ltd. celebrated its centenary. The cocoa and chocolate factory at Bournville now employs some nine thousand workers, and has depots and offices throughout England and many parts of the world. Freedom from industrial disputes, a remarkable stability of labour, and a healthy, contented staff, are features to be envied by many businesses to-day. In industrial welfare work Cadburys have long been pioneers, and the organization which has been built up at the "Factory in a Garden" is an example of what can be done in this direction. Messrs. Cadburys have just issued an interesting review, under the title of "A Century of Progress." This relates that in 1831 John and Benjamin Head Cadbury manufactured their first cocoa in a small workroom in Birmingham. From these humble beginnings the business has grown to be world-famous. The booklet may be obtained from the Publication Department, Bournville, at the cost of 1s. post free.

Medical Golf

The Carnarvon and Anglesey Division of the British Medical Association held its summer golf meeting at Llandudno on June 11th under perfect conditions. Members were the guests of their Llandudno colleagues, who had organized a very successful day. Drs. Waterworth and Brown won the afternoon match against bogey with a score of three up. Dr. Madoc Jones won the medal round, and qualified to represent the Division at Eastbourne.

The Children's Clinic

In our issue of June 13th (p. 1044) we referred to the second annual report of the Children's Clinic for the Treatment and Study of Nervous and Delicate Children. We are asked to say that the new address of the clinic is Browning House, 19, Warwick Crescent, W.2.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 40, 42, 43, 44, 45, 46, 47, 50, and 51 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 275.

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EPITOME

OF

Current Medical Literature.

JANUARY TO JUNE, 1931

London:

PRINTED AND PUBLISHED AT THE OFFICE OF THE BRITISH MEDICAL ASSOCIATION, TAVISTOCK SQUARE, LONDON, W.C.1.

INDEX TO THE EPITOME FOR VOLUME I, 1931

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma; Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria, and Sugar; Eye, Ophthalmia, and Vision, etc.

The Figures in this Index refer to the Number of the Paragraph, NOT the Page.

A.

ABADIE, J.: Hydatid cysts of lung, 346
Abdomen, actinomycosis of, 348
Abdominal symptoms in acute rheumatism, 142
ABESHOUSE, B. S.: Post-operative urinary incontinence, 32
Abortion, treatment of, 256
Abscess, peritonsillar, treatment of, 501
ABT, A. F.: Percutaneous diphtheria immunization, 355
ABUREL, E.: Anaesthetization of the lumbo-aortic plexus, 580
Accouchement, rapid, by method of Delmas, 23. *See also* Labour
Achlorhydria with hypochromic anaemia, 438
Acid-base balance and allergy, 160
Acid production by Brucella strains, 488
Acne, an endocrine factor in, 403
Acoustic nerve. *See* Nerve
Acriflavine: In psoriasis vulgaris, 62—In undulant fever, 59
Actinomycosis of the abdomen, 348
Actino-sensitivity of oestrin, 542
ADDESSI, G.: Histamine and utero-placental apoplexy, 642
Addison's disease: The cortical hormone in, 15—Etiology of, 295—Treatment of with a hormone from the cortex of the suprarenal gland, 352
Adenitis, cervical, acute, tonsillectomy in, 195
Adenitis, inguinal, special form of, 94. *See also* Lymphogranulomatosis
Adenoacanthoma of the uterus, 210
Adenocarcinomatous growths of the bladder, 147
Adenoids in adults, frequency of, 275
Adenomatous goitres, 246
ADLERSBERG, D.: Local treatment of ulcers with insulin, 13
Adnexal inflammation, conservative operation for, 254
Agranulocytosis, 564
Alcoholic delirium, strychnine in, 375
Alcoholism, bactericidal power of the blood in, 262
ALDRIDGE, F. C.: An outbreak of trichinosis in Pennsylvania, 413
ALEMI, M.: Laryngeal complication of quinsy, 379
ALEXANDER, J.: Treatment of non-tuberculous pulmonary conditions, 72
Alkalis in malaria, the haemic effects of quinine and, 43
ALLEN, I. M.: Tumours involving the cauda equina, 174
ALLEN, P. K.: Acriflavine in psoriasis vulgaris, 62
Allergic syphilis. *See* Syphilis
Allergy and the acid-base balance, 160
Allergy conditions, skin tests in diagnosis of, 218
Amato's test for syphilis, 25
Ambulant therapy in proctology, 418
AMIES, C. R.: Plasmoquine in malaria, 454
Amniotic bands, foetal injury by, 21
Amoebic colitis. *See* Colitis
Amylaceous dyspepsia, 416
Amyotrophic lateral sclerosis. *See* Sclerosis
Amytal in spinal anaesthesia, 482
Anaemia, chlorotic, of pregnancy, 179
Anaemia and diet, 294
Anaemia, hypochromic, with achlorhydria, 438
Anaemia, iron treatment of, 250
Anaemia, malarial, splenic extract in, 199
Anaemia, pernicious, 221—Liver diet in, histological effects of, 213—Resistant to liver treatment, 412
Anaemia, pernicious, the erythrocyte in, 335
Anaemia, pernicious, essential, pathogenic factors in, 315
Anaemia, pernicious, gastric juice of dogs in treatment of, 377—Gastric tissue of swine in, 424
Anaemia, splenic, local vascular changes in, 119
Anaemias, haemolytic, 137
Anaerobic blood culture. *See* Blood
Anaesthesia, combination, 154
Anaesthesia, effect of on paroxysmal conditions, 466
Anaesthesia, general, ethyl chloride, for children, 357
Anaesthesia, general, pulmonary complications of, 39
Anaesthesia, infiltration, in fractures, 153
Anaesthesia, intravenous, barbitone derivatives in, 37
Anaesthesia, local, percaine as a, 152
Anaesthesia, regional, 480
Anaesthesia, spinal: Indications for, 356—Amytal in, 482
Anaesthesia. *See also* Narcosis *and* Analgesia
Anaesthetic, general, for children, ethyl chloride as an, 357
Anaesthetic, pernocton as an, 353
Anaesthetic, spinal, neocaine as a, 603
Anaesthetization of the lumbo-aortic plexus, 580
Anal chancre, 555
Analgesia, obstetrical, the barbiturates in, 505
Anatoxin, tetanus, the preparation of, 539
ANDRÉ-THOMAS: Etiology of chorea, 439
Aneurysm of aorta, dissecting, simulating pulmonary neoplasm, 584
Aneurysm of the heart, diagnosis of, 93
Aneurysms, miliary, of cerebral arteries, 24
ANGELERI, C.: The titre of isoagglutinating serums, 386
ANGELINI, V.: Measles complicated by diabetes insipidus, 92
Angina pectoris, 511—Surgical treatment of, 302
ANGYAL, A.: The bactericidal power of the blood in alcoholism, 262
Anhydraemia in extensive superficial burns, 10
Ankle fractures, with backward dislocation, 395
Ankylosis of the temporo-maxillary joint, 592
Antigangrene serum in scarlet fever, 571
Antigens in *B. anthracis*, multiplicity of, 138
Antimony in therapeutics, 104
Antimony, organic, in kala-azar, 328
Antiseptics, influence of soap on, 487
Antral (Highmore) diseases, radiography in, 556
Aortic aneurysm. *See* Aneurysm
Apoplexy, utero-placental, and histamine, 642
Appendicectomy, the latero-posterior incision for, 549
Appendicitis, chronic, 274
Appendicitis in the middle-aged, 8
Appendicitis and trauma, 126
Arborescent lipoma. *See* Lipoma
Argyrosis of the cornea, 575
ARNHEIM, E. E.: Neocaine as a spinal anaesthetic, 603
ARONSTAM, N. E. Cutis marmorata (livedo reticularis), 252
Arsphenamine: Precautions during administration of, 497—In the treatment of syphilis, 526, 601
Arterial hypertension: Rational treatment of, 79—Bismuth subnitrate in, 201—Treatment of idiopathic, 325
Arteries, cerebral, miliary aneurysms of, 24
Arthritis, chronic, treatment of, 524
Arthritis, infectious (atrophic), streptococci in, 89
Arthritis, purulent, of the knee, treatment of, 419
Arthritis, syphilitic, 545
Artificial feeding. *See* Feeding
Artificial pneumothorax. *See* Pneumothorax
ARVANITAKIS, G.: Radiography of discrete pulmonary lesions, 427
Asbestosis bodies in the sputum, 161
Aschheim-Zondek test for pregnancy, 639
Ascites, a confirmatory physical sign in, 587
Ascites, foetal, 610
ASLETT, E.: Treatment of malaria, 598
Aspergillosis, cerebral, 367
Asphyxiation, neo-natal, 429
Asthma, bronchial, effect of anaesthesia on, 466
Asthma intensified by liver therapy, 295
Asthma, sex and age incidence in, 265
Astrocytomas, cerebellar, 345
AUDEBERT: Fibroma praevia and forceps delivery, 207
Auditory meatus, acute inflammation of the, 502
Auricular fibrillation in heart disease, 183
Auscultatory sign of defective conduction in mitral stenosis, 622
AVERILL, L. C. L.: Induction of labour, 156
Avertin causing fatal colitis, 602
AXELROD, M. L.: The barbiturates in obstetrical analgesia, 505
Axillary vein. *See* Vein
Azotaemia and renal insufficiency, 211

B.

BAAGÖE, K. H.: Sex and age incidence in asthma, 265
BAAR, H.: Percutaneous immunization in diphtheria, 95
BAASTAD, W. F.: Stieda's lesion, 192
Bacillus anthracis, multiplicity of antigens in, 138
Bacillus Calmette-Guérin, increase in virulence of the strain, 117
Bacillus Calmette-Guérin strain, dissociation of the, 434
Bacillus coli pyuria, the causal organisms of, 582
Bacillus coli in water, the search for, 562
Bacillus, Ducrey's, cultivation of from soft chancres, 336
Bacillus, paratyphoid, aberrant, infection due to, 364
Bacillus, tubercle (bovine) as a cause of phthisis, 486
Bacillus, tubercle, quantitative estimation of living and dead, in sputum, 614
Backache, low, 167, 168
Bacteria, infective power of, enhancement of, 181
Bactericidal power of the blood in alcoholism, 262
Bacteriophage in the diagnosis of dysentery, 508
Bacteriophage therapy in chancroid, 171
BADINAND, A.: Nephritis caused by trypaflavine, 182
BAILEY, W.: Bulbar paralysis after teeth extraction, 318
BAILLIART, P.: Ocular hypertensive conditions, 576
BALARD, P.: Uterine hypertony in successive labours, 608
BALDRIDGE, C. W.: Auricular fibrillation in heart disease, 183
BALLANCE, C.: Dual innervation of striated muscle, 433
BALTHAZARD: Epilepsy due to compression of the frontal lobe, 3
BAQUERO, G.: The blood platelets in pulmonary tuberculosis, 507
BARBERA, G.: Volvulus of the stomach, 223
Barbitone derivatives in intravenous anaesthesia, 37
Barbiturates in obstetrical analgesia, 505
BARGEN, J. A.: Serum treatment of chronic ulcerative colitis, 200—Prevention of peritonitis in colon surgery, 224
Barium chloride in typhoid fever, 498
BARNES, A. R.: Calcareous aortic valvular disease, 491
BARRAQUER Y CERERO, T.: Pathogenesis of sympathetic ophthalmia, 282
Basal metabolism in pulmonary tuberculosis, 617
BASSET, J. J. A.: Bacteriophage therapy in chancroid, 171
BASSLER, A.: Treatment of chorea, 170
Baths, hot, for relief of intermittent claudication, 276
BAUER, R.: Primary tumours of the heart, 125—Thyroidectomy immediately before parturition, 323
BAUM, H. L.: Tonsillectomy in acute cervical adenitis, 195
BAUX Haemorrhage in delivery of hydatidiform mole, 178—Fibroma praevia and forceps delivery, 207

BAZGAN, J.: Antigangrene serum in scarlet fever, 571
Bean, soya, as a milk substitute, 477
BECHER, E.: Skin coloration in renal insufficiency, 30—Renal insufficiency and azotaemia, 211
BECK, A. C.: Eclampsia, 406
BECKER, J.: The haemostatic action of Congo red, 80
BECKER, S. W.: Yeast factors in superficial dermatitis, 251
BECKMAN, H.: Allergy and the acid-base balance, 160
BEEBE, R. T.: Lobar pneumonia treated unsuccessfully with convalescent serum, 34
BEERMAN, H.: Bismuth arsphenamine in early syphilis, 601
BEGBIE, R. S.: Dissociation of the B.C.G. strain, 434
BEGG, R. C.: Adenocarcinomatous growths of the bladder, 147
BEHNEY, C. A.: Ectopic gestation, 206
BELL, G.: Gastric syphilis simulating carcinoma, 440
BELOT, J.: Treatment of parotid epithelioma, 444
BELSON, M. O.: A rubella epidemic, 122
BELT, T. H.: Silicosis and tuberculosis, 139
BENEDICT, H.: Percutaneous immunization in diphtheria, 95
BENN, E. C.: Sublingual mumps with oedema of tongue, 267—Measles encephalitis, 589
Benzyl cinnamic ether in treatment of inflammatory conditions, 12
BÉRARD, F.: Rupture of the spleen and left kidney, 52
BERESOW, E.: Total resection of the stomach 245
BERKMAN, J. M.: The cortical hormone in Addison's disease, 15
BERNARD, J.: Subacute inguinal lymphogranulomatosis, 94
BETTS, L. O.: Obliteration of the common bile duct, 519
BERNARD, L.: Tuberculosis and marriage, 28
BEYER, C. E.: Peritoneal bleeding from perforation by uterine chorion-epithelioma, 430
BHAGEERUTTY, R.: Recovery from pneumococcal meningitis, 97
BICHARA, F. E.: Streptococcal myositis, 590
BIJL, J. P.: Incidence of Weil's disease in Holland, 5
Bile duct, common, obliteration of the, 519
BINET: Pelvic sympathectomy, 65
Birth, circulatory changes at, 205
BISHOP, E. L.: Epidermoid carcinoma in sebaceous cysts, 270
Bismuth arsphenamine in early syphilis, 601
Bismuth, radio-active, in treatment of malignant tumours, 193
Bismuth subnitrate in arterial hypertension, 201
Bismuth therapy, renal complications of, 398
BLACKMAN, S. S.: Acute nephritis produced by a pneumococcal autolysate, 362
Bladder, adenocarcinomatous growths of the, 147
Bladder, urinary, diverticula of the, 371
BLECKWENN, W. J.: Sodium amytal in neuropsychiatric conditions, 106
BLOCH, B.: An endocrine factor in acne, 403
Blood, bactericidal power of in alcoholism, 262
Blood changes during pregnancy and parturition, 462
Blood culture, anaerobic, by the Boëz method, 118
Blood in delirium tremens, 509
Blood flow, velocity of the, 464
Blood formation and copper, 422
Blood platelets, enumeration of, 115
Blood platelets in pulmonary tuberculosis, 507
Blood pressure, high, treated with pancreatic extract, 63*
Blood regeneration, the action of liver extract on, 237
Blood sedimentation rate in gynaecological conditions, 337
Blood serum, cholesterin titre of, 44
Blood sugar content in later life, 365
Blood transfusion reactions, etiology of, 385
Blood transfusion followed by uraemia, 470
BLOOM, D.: Cutaneous calcinosis, 402
BLUMGART, H. L.: Velocity of the blood flow, 464
BOECKEL, A.: Ureteral pyelography, 554
BOEGNER, E.: Uraemic meningitis, 123
Boëz method of anaerobic blood culture, 118
BOISSON, G.: Diathermy in renal colic, 280
BOKELMANN: Treatment of eclampsia, 535
BOMPIANI, R.: Histamine and utero-placental apoplexy, 642
Bone lesions, phalangeal, treatment of, 31
Bone, Recklinghausen's disease of, 299
BOOTS, R. H.: Structure of rheumatic nodules, 238
BORTS, I. H.: Monilial vulvo-vaginitis, 503
BORY, L.: Renal complications of bismuth therapy, 398
BORDLEY, J.: Etiology of blood transfusion reactions, 385
BOSCH, H.: Deafness in trichinosis, 441
BOUCOMONT, R.: Pulmonary embolisms in developing myocardial infarct, 510
BOULIN, R.: Pernicious anaemia resistant to liver treatment, 412
BOURN, Janet M.: Experimental transmission of the common cold, 611
BOWER, A. G.: Treatment of meningococcal meningitis, 525
BOYER, C. E.: Peritoneal bleeding from perforation by uterine chorion-epithelioma, 430
BRAAK, J. W. G. Ter: Epidemic polyneuritis, 624
Brachial plexus and its roots, trauma of, 456
BRAHDY, M. B.: Pancreatitis complicating mumps, 343
Brain lesions, fixed, encephalography in, 132
BRATKOWSKI, E.: Colonic stasis of hepatic causation, 269
BRÉMOND, E.: Rapid accouchement by method of Delmas, 23
BRENNAN, J.: Post-operative ileus, 273
Broad ligament, early endometrial invasion of the, 643
BROCHIER, A.: Puerperal infection and influenza, 333
BROCKBANK, W.: Pernicious anaemia, 221
Bromide poisoning, chronic, 185
Bromide and iodide therapy, 528
Bromides in the persistent vomiting of pregnancy, 536
Bronchial glands, latent and occult tuberculous infection of, 411
Bronchiectasis in childhood, treatment of, 203
Bronchiectasis, surgical treatment of, 417
BROUHA: Trial labour in contracted pelvis, 158
BROWN, A.: A cereal mixture for children, 16
BROWN, J. H.: Acute nephritis produced by a pneumococcal autolysate, 362
BROWN, R. G.: Radiography in antral (Highmore) diseases, 556
Brucella strains, acid production by, 488
BRÜGSCH, T.: Jaundice and iron metabolism, 613
BUCCIANTI, E.: Plasma volume and acute infections, 465
BUCKINGHAM, W. W.: Treatment of non-tuberculous pulmonary lesions, 72
Bulbar paralysis. *See* Paralysis
BUNBURY, D. Elizabeth: Chronic bromide poisoning, 185
BÜRGERS: Incidence of diphtheria, 242
Burn scars, cancer developing in, 124
Burns in children, 51
Burns, superficial, extensive, anhydraemia in, 10
Burns, tannic acid in treatment of, 51
BURTON, J. A. G.: Generalized myositis fibrosa, 618
BUTSCHOWITZ, E.: Quantitative estimation of living and dead tubercle bacilli in sputum, 614

C.

CABOT, H.: Ethylene gas explosions, 481
Caesarean section, cervical, dangers of, 176
Caesarean section, lower, 577, 578
Caesarean section, rupture of uterus following, 42
Calcareous aortic valvular disease, 491, 492
Calcinosis, cutaneous, 402
Calcium gluconate in oedema, 527
Calcium and parathyroid in chronic ulcerative colitis, 354
Calculus in the solitary kidney and ureter, treatment of, 169. *See also* Stone
Cancer, bismuth radio-active in treatment of, 193
Cancer of bladder, treatment of, 446
Cancer in burn scars, development of, 124
Cancer of the cervix: Operability in, 20—Radium treatment of, 287, 458, 459—After subtota hysterectomy, 609
Cancer, epidermoid, in sebaceous cysts, 270
Cancer of the larynx, intrinsic, 381
Cancer of lung, primary, 11
Cancer of the ovary, 579
Cancer of the prostate, treatment of, 446
Cancer, scirrhous gastric, radiological diagnosis of, 131
Cancer, serum reactions in, 260
Cancer simulated by gastric syphilis, 440
Cancer of skin: Treatment of, 76, 271—In sebaceous cysts, 270
Cancer of tongue, early signs of, 393
Cancer of the trachea, primary, 110
Cancer of uterus, early diagnosis of, 134
Cancer of the vagina, 606, 607
Cancer of vagina and pessaries, 504
Cancer. *See also* Malignant disease: Tumours, etc.
CANTALAMESSA, V.: Meningococcal meningitis in infants, 415, 516, 531
CANTAROW, A.: Calcium and parathyroid in chronic ulcerative colitis, 354—Ether hyperglycaemia, 604
CANUYT, G.: Treatment of peritonsillar abscess, 501
Carbohydrate dyspepsia, treatment of, 303
Carbohydrate metabolism: Gall-bladder disease and, 615—Of the skin, 561
Carbuncle, renal, 493
Carcinoid tumours. *See* Tumours
Carcinoma. *See* Cancer
Cardiac disease and urinary retention, 435
Cardiac. *See also* Heart
Cardio-vascular syphilis, treatment of, 35
CARROT, E.: Injection treatment of varicose veins, 443
CARTER, L. F.: Ocular manifestations of trichinosis, 283
Caruncle, urethral, treatment of, 247
CASANO, C.: Haemolytic anaemias, 137
CASSAËT: Massive doses of sodium salicylate in acute rheumatism, 353
CASTANEDA, M. R.: Immunization against typhus fever, 540
CASTAÑO, C.-A.: Treatment of the fibrocystic ovary, 87
Catarrh, nasal, sodium iodide in, 350
Catarrhal jaundice. *See* Jaundice
Cauda equina, tumours involving the, 174
CAULK, J. R.: Litholapaxy, 568
CAUSSADE, G.: Treatment of tuberculous haemoptysis, 632
CECCARELLI, D.: Insulin in wasting following cholelithiasis, 196
CEDERCREUTZ, A.: Erythema nodosum and tuberculosis, 341
Cereal mixture for children, 16
Cerebellar astrocytomas, 345
Cerebral arteries. *See* Arteries
Cerebral aspergillosis, 367
Cervical lacerations, 255
CHABANIER, H.: Oily solutions of insulin in diabetes, 552
CHALIER, J.: Milk injections in erysipelas, 127
Chancre of anus, 585
Chancre, gonococcal, 621
Chancre of the tongue, 49
Chancres, soft, cultivation of Ducrey's bacillus from, 326
Chancroid, bacteriophage therapy in, 171
Chandler, L. R: Chronic appendicitis, 274
CHARPY: Gold pigmentation of the skin, 404
CHATON, M.: Hirschsprung's disease, 420
CHATON, P.: Strychnine in alcoholic delirium 375
Chaulmoogra oil in the local treatment of leprosy, 400
CHAVIGNY, M.: Pericarditis with effusion, 414
Chemistry, clinical, of the skin, 363
CHEVALIER, P.: Subacute inguinal lymphogranulomatosis, 94—Diet in catarrhal jaundice, 130—Essential or familial haemophilia, 437
CHIARIELLO, A. G.: Experimental uraemia, 140
Chicken-pox. *See* Varicella
CHIEVITZ, O.: Radium treatment of cancer of the cervix, 458
Children, fasting, insulin and epinephrine in 68
China, eclampsia in, 257
Chlorotic anaemia. *See* Anaemia
Cholecystectomy without drainage, 392
Cholelithiasis followed by wasting, insulin in 196
Choleriform syndrome in infantile diarrhoea, 565
Cholesteatoma, aural, pathogenesis of, 500
Cholesterinaemia in diphtheria, 90
Chondromas of the hand, 447
Chorea, etiology of, 338, 439
Chorea, treatment of: By phenyl-ethyl-hydantoin, 151—By nirvanol, 172
Chorion-epithelioma without external haemorrhage, 136
Chorion-epithelioma, hydatidiform mole, and the Zondek-Aschheim reaction, 534
Chorion-epithelioma of uterus, perforating, peritoneal bleeding from, 430
CHRISTIE, J. F.: Xanthoma multiplex with hypothyroidism, 63
Cinchophen administration, toxic symptoms during, 327
Circulatory changes at birth, 205
CITRON, R.: Sporadic encephalitis, 163
Claudication, intermittent, relieved by hot baths, 276
CLERC, A.: Dissecting aortic aneurysm simulating pulmonary neoplasm, 584
CLEVELAND, D. E. H.: Mercurialism following the application of mercurochrome, 376
Clostridium welchii, haemorrhagic lesions caused by, 215
CODVELLE: Serotherapy in meningococcal septicaemia, 58
COELST, M.: Ankylosis of the temporo-maxillary joint, 592
COHEN, M. J.: Post-traumatic mental symptoms, 188
COHN, B.: Staphylococcal septicaemia, 374
Colds, experimental transmission of, 611—By a filterable agent, 69
Colic, post-operative due to flatus, treatment of, 166
Colic, renal, diathermy in, 280
Colitis, amoebic, administration of emetine in, 551
Colitis, fatal, caused by avertin, 602
Colitis, ulcerative, chronic: Serum treatment of, 200—Calcium and parathyroid in, 354
COLL, J. P.: Injection treatment of varicose veins, 191
Collapse, post-operative pulmonary, etiology of, 432
COLLIS, W. R. F.: Immunology of scarlet fever, 159
Colon surgery, prevention of peritonitis in, 224
Colonic stasis of hepatic causation ("hepatic tiflostasis"), 269
COLUMBA, D.: Insulinaemia in the fat and thin, 410
COMBIESCO, N.: Haemorrhagic lesions caused by *Clostridium welchii*, 215
Common cold. *See* Cold
Complement-fixation test in gonorrhoea, 70
Congo red, haemostatic action of, 80
CONNER, H. M.: Gastric tissue in pernicious anaemia, 424
Convalescent serum. *See* Serum
Convulsions in disseminated sclerosis, 121

COOKE, H. H.: Carcinoid tumours of the small intestine, 595
Copper and blood formation, 422
CORBIA, A.: Estimation of glycaemia, 541
Cornea, argyrosis of the, 575
Cortical hormone *See* Hormone
Coryza, acute, sodium iodide in, 350
COSSIO, P.: Localization of myocardial infarction by the electrocardiogram, 241
COSTE, F.: Lipiodol injections in neuralgia and rheumatic pains, 248
COTTE, G.: Intrauterine lipiodol injections in sterility, 234—Cholecystectomy without drainage, 392—Resection of the pelvic sympathetic, 611
COUCH, J. K.: The diagnosis of pregnancy, 382
COUNSELLER, V. S.: Uterine prolapse, 22
COURTOIS, A.: The blood in delirium tremens, 509
COWAN, J.: Generalized myositis fibrosa, 618
CRANE, M. P.: The action of liver extract on blood regeneration, 237
Cranial nerves. *See* Nerves
CRAVEN, E. B., jun.: Precautions during arsphenamine administration, 497
CRAVER, Ll. F.: Radiation treatment of polycythaemia vera, 133
CRAWFORD, L. P.: Treatment of spasmodic croup, 476
CREYSSEL, J.: Peritoneal bleeding from perforation by uterine chorion-epithelioma, 430
CROSS-LEBOURLIER, A. M.: Choleriform syndrome in infantile diphtheria, 565
CROTHERS, B.: Encephalography in fixed lesions of the brain, 132
CROUCH, J. H.: Vaccine therapy in enteric fever, 60
Croup, spasmodic, treatment of, 476
CUILLERET, P.: Gold pigmentation of the skin, 404
CUMMING, W. M.: Latent and occult tuberculous infection of bronchial glands, 411
CUNNINGHAM, Ruby L.: The tonsils and disease, 625
Curetting in chronic gonorrhoea, 431
CUSHING, H.: Cerebellar astrocytomas, 345
Cutaneous pigmentation and health, 514
Cutis marmorata (livedo reticularis), 252
Cyst of ovary, suppuration in, 135
Cystic mastitis, chronic, 359
Cysts, hydatid, of lung, 346
Cysts, sebaceous, epidermoid carcinoma in, 270

D.

DALSACE, J.: Treatment of inflammatory conditions with benzyl cinnamic ether, 12
DAMADE, R.: Intestinal perforation in paratyphoid B fever, 293
DAMESHEK, W.: Agranulocytosis, 564
DANGLADE, J. H.: Treatment of cardio-vascular syphilis, 35
DANIELOPOLU, D.: Surgical treatment of angina pectoris, 302—The effect of anaesthesia on paroxysmal conditions, 466
DAS, P. Chandra: Foetal ascites, 610
DAUDIN-CLAVAUD: Treatment of infected tonsils by diathermy, 109
DAUNA, V.: Benign lymphocytic meningitis, 75
DAVIDSON, E. C.: Burns in children, 51
DAVIS, M.: The use of glandular extracts in labour, 41
DAVISON, T. C.: Intrathoracic tumours, 190
DAWSON, B.: Early endometrial invasion of the broad ligament, 643
DAWSON, M. H.: Structure of rheumatic nodules 238
Deafness in trichinosis, 441
DE BLASIO, R.: Diagnostic tests for syphilis, 25
DEBRAY, M.: Treatment of peptic ulcer, 129—Treatment of gastric ulcers by pepsin, 197
DE BÜBEN, I.: Carcinoma of the vagina, 607
DE COURCY, J. L.: Surgical treatment of goitre, 243
DECOURT, J.: Yagéine or harmine, 198
DEFAIX, L. F.: Retention of urine in typhoid fever, 4
DEGOS, R.: Vaccinotherapy in acute articular rheumatism, 14
DE GRÓSZ, E.: The operative treatment of glaucoma, 574
DEIBERT, I. E.: Osteomyelitis treated by the "Orr" method, 98
DE JONGH, L.: Mild small-pox, 2
DESCHAMPS, P. N.: Dissecting aortic aneurysm simulating pulmonary neoplasm, 584
Delirium, acute, in mental cases, 18
Delirium, alcoholic, strychnine in, 375
Delirium tremens, the blood in, 509
Delivery. *See* Accouchement *and* Labour
DELMAS, P.: Rapid accouchement by method of Delmas, 23
DELMAS-MARSALET, P.: Injection treatment of Paget's disease, 107
Dementia paralytica: Malaria therapy in, 36—Juvenile, 175—Hyperpyrexial treatment of, 226
Dengue fever, 339
Dental infection and respiratory disorders, 239
Dental operations, percaine in, 152
Dermatitis, superficial, yeast factors in, 251
DE SCHLANGER, E. W.: *X*-ray treatment of primary malignant lymphadenoma, 555
DE SCRIVER, W.: Pyloric obstruction relieved by medical treatment, 228
DESJACQUES, R.: Rupture of the spleen and left kidney, 52
DESPLAS, B.: Exophthalmic goitre, 520
DEULOFEU, V.: Multiplicity of antigens in *B. anthracis*, 138
Dextrose solutions in eclampsia, 535
Diabetes insipidus complicating measles, 92
Diabetes, oily solutions of insulin in, 552
Diabetic, eclampsia in a, 40
Diabetic patients, operations on, 78
Diaphragmatic hernia. *See* Hernia
Diaphragmatic paralysis by phrenic evulsion, 53
Diarrhoea in children, fruit treatment of, 105
DIASIO, J. S.: Protein therapy in salpingitis, 483
Diathermy for the induction of diuresis in nephritis, 184
Diathermy treatment: Of infected tonsils, 109—Of dementia paralytica, 226—Of renal colic, 280
DIBOLD, H.: Heart failure and metabolism, 537
DIECKMANN: Dextrose solutions in eclampsia, 535
DIEM, E.: The relation of mild to typical small-pox, 214
DIENERT, F.: The search for *Bacillus coli* in water, 562
Diet and anaemia, 294
Diet in catarrhal jaundice, 130
Diet in pulmonary tuberculosis, 150
Dietetic treatment of obesity, 479
Digitalis in pneumonia, 304
Digitalis therapy in children, 631
DIMITRY, T. J.: Local treatment of leprosy with chaulmoogra oil, 400
DINGER, J. E.: Bacteriology of yellow fever, 292
Diphtheria carriers, treatment of, 399
Diphtheria, cholesterinaemia in, 90
Diphtheria, control of in institutions, 390
Diphtheria, immunity to, the negative phase in, 436
Diphtheria, incidence of, 242
Diphtheria, infantile, choleriform syndrome in, 565
Diphtheria, percutaneous immunization in, 95, 355
Diphtheria, toxic, 189
Diphtherial infection of the umbilicus, 48
Disease, resistance to, seasonal variations in, 387
Disease and the tonsils, 625
Disseminated sclerosis. *See* Sclerosis
DITTLER, E. L.: Benign acute pulmonary tuberculosis, 543
Diuresis in nephritis, induction of, 184
Diuretic, salyrgan as a, 326
Diverticula of the urinary bladder, 371
DOCHEZ, A. R.: Experimental transmission of colds by a filterable agent, 69
DOGLIOTTI, A. M.: Renal innervation, 116
Dogs, gastric juice of in treatment of pernicious anaemia, 377
DONATO, J.: Cholesterinaemia in diphtheria, 90
DOUGLAS, R. G.: Induction of labour by membrane rupture, 640
DOULL, J. A.: Experimental transmission of the common cold, 611
DRAKE, T. G. H.: A cereal mixture for children, 16—Sugar tolerance in infants, 612
DRENKHAHN: Fourth disease, 368
DU BOIS, Ch.: Lingual tuberculosis, 593
DUBOIS, E. F.: Digitalis in pneumonia, 304
DUBREUILH, W.: Treatment of cutaneous cancer, 271
Ducrey's bacillus, cultivation of from soft chancres, 336
DUJARDIN: Intradermal reactions in early and late allergic syphilis, 88
DUKEN, J.: Artificial pneumothorax in pneumonia in infancy, 102—Spastic hemiplegia following post-vaccinal encephalitis, 187
DUMAS, A.: Treatment of idiopathic arterial hypertension, 325
Duodenal fistula, 301
Dysentery, the bacteriophage in the diagnosis of, 508
Dyspepsia, amylaceous, 416
Dyspepsia, carbohydrate, treatment of, 303

E.

ECKMAN, P. F. Calcareous aortic valvular disease, 492
ECKSTEIN, A.: Production of encephalitis with vaccinia virus, 293
ECKSTEIN, E.: Epidemic serous meningitis, 162
Eclampsia, 406
Eclampsia in China, 257
Eclampsia in a diabetic, 40
Eclampsia, etiology of, 532
Eclampsia, preventability of, 461
Eclampsia, treatment of, 535
Ectopic gestation *See* Gestation *and* Pregnancy
EDINGER, B.: Paratyphoid B fever with lung complications, 469
Effort, intense, influence of upon leucocyte count, 236
EGGERTH, A. H.: Germicidal properties in soaps, 212
EICKEN, F.: Trauma and appendicitis, 126
EIGLER, G.: Etiology of psittacosis, 261
EIKENBARY, C. F.: Osteomyelitis variolosa, 449
EISELBERG, F.: Serum treatment of erysipelas, 523
Electrocardiogram for the localization of myocardial infarction, 241
Electro-surgical scalpel in renal surgery, 548
ELEY, R. C.: Encephalography in fixed lesions of the brain, 132
ELLER, J. J.: Treatment of skin cancer, 76
ELLIS, L. B.: Rational treatment of arterial hypertension, 79
Embolism, pulmonary, and typhoid phlebitis, 33
Embolisms, pulmonary, in developing myocardial infarct, 510
Embolus, obstetric, post-operative, 86
Emetine administration in amoebic colitis, 551
EMRICH, W. H.: Cervical lacerations, treatment of, 255
Encephalitis in childhood, etiology of, 583
Encephalitis, epidemic, acoustic nerve involvement in, 380
Encephalitis, epidemic, amyotrophic lateral sclerosis in, 17
Encephalitis, measles, 589
Encephalitis, post-vaccinal: Followed by spastic hemiplegia, 187—And generalized vaccinia, 342
Encephalitis, sporadic, 163
Encephalitis in undulant fever, 546
Encephalitis produced with vaccinia virus, 293
Encephalitis, vaccinal, 513
Encephalography in fixed lesions of the brain, 132
Endocarditis with meningococcaemia, 370
Endocrine factors: In migraine, 74—In acne, 403
Endocrine treatment of gastric and duodenal ulcers, 279
Endometrial haemorrhage. *See* Haemorrhage
Endometrial invasion, early, of the broad ligament, 643
ENGELSGAARD, H. d'U. A.: Erythema nodosum and pulmonary tuberculosis, 141
Enteric fever. *See* Fever
Enuresis, types of, 530
Epilepsy, etiology of, 173
Epilepsy due to compression of the frontal lobe, 3
Epilepsy, ketogenic treatment of, 56
Epilepsy and menstruation, 311
Epinephrine and insulin in fasting children, 68
Epithelioma, parotid, treatment of, 444
Ergosterol, irradiated, relation of vitamin D to, 313
Ergotamine, general therapeutic value of, 573
Erysipelas: Milk injections in, 127—Serum treatment of, 523
Erythema nodosum and pulmonary tuberculosis, 141, 341
Erythrocyte in pernicious anaemia, 335
ESSENSON, S. J.: Endocrine treatment of gastric and duodenal ulcer, 279
ESTIENNY, E: Fibroma praevia and forceps delivery, 207
Ether, benzyl cinnamic, in treatment of inflammatory conditions, 12
Ether hyperglycaemia, 604
Ethyl chloride as a general anaesthetic for children, 357
Ether narcosis, glutathione in, 463
Ethylene gas explosions, 481
ETRILLARD, P.: The search for *Bacillus coli* in water, 562
ETTINGER, G. H.: The Aschheim-Zondek test for pregnancy, 639
EVANS, E. T.: Acute poliomyelitis, 623
EWELL, G. H.: Iodine therapy in exophthalmic goitre, 305
EWIG, W.: Induction of diuresis in nephritis, 184
Exophthalmic goitre. *See* Goitre
Extrapleural thoracoplasty. *See* Thoracoplasty
Extravasation from the ureter, 321
Eye. *See also* Ocular *and* Ophthalmia

F.

Facial paraspasm, bilateral, 455
FAHR, Th.: Histological effects of liver diet, 213
Fallopian tubes: Inflation of, and salpingography, 85—Occlusions of the lumen of the, 209. *See also* Tubes
FANCONI: Fruit treatment of diarrhoea in children, 105
FARRAR, Lilian K. P.: Radium treatment of cancer of the cervix, 459
Fascia, perivaginal, in nulliparae, 177
FASTING, G. F. C: Serum treatment of chronic ulcerative colitis, 200
Fasting children. *See* Children
FAYOT, G.: Suppuration in ovarian cysts, 135
Feeding, artificial, in infants, 83
FEINBERG, S. M.: Skin tests in diagnosis of allergy conditions, 218
FEINGOLD, B. F.: Percutaneous diphtheria immunization, 355
Femur, pseudarthroses of the neck of the, 373
FERRABOUC: Serotherapy in meningococcal septicaemia, 58
Fever, dengue, 339
Fever, enteric, barium chloride in, 498
Fever, enteric, during the war, 46
Fever, enteric, tetany complicating, 222
Fever, enteric, trypaflavine in, 553
Fever, enteric, urine retention in, 4
Fever, enteric, vaccine therapy in, 60
Fever, paratyphoid B: Intestinal perforation in, 298—With lung complications, 469
Fever, rheumatic, streptococci in, 89—Vaccine treatment of, 452. *See also* Rheumatic

Fever, scarlet: Antigangrene serum in, 571—Immunology of, 159—Relapses in, 544—Streptococcus of, non-specificity of, 290—In Sweden, 468
Fever, typhus, immunization against, 540
Fever, undulant: Acriflavine in, 59—Encephalitis in, 546—Investigations on in Germany, 314—In New South Wales, 619
Fever, yellow, bacteriology of, 292
Fibrocystic ovary, treatment of the, 87
Fibroma praevia and forceps delivery, 207
Fibula, primary osteomyelitis of the, 628
FIGI, F. A.: Primary carcinoma of the trachea, 110
FILDES, P.: The germination of tetanus spores, 45
Fingers, parakeratoses of the ends of the, 401
FINLAND, M.: Vascular lesions of the hind-brain, 19
FINLEY, R. K.: Pre-adolescent ovarian tumours, 533
Fistula, duodenal, 301
Flatus causing post operative colic, treatment of, 166
FLEISCHMAN, A. G.: Treatment of urethral caruncle, 247
FLEMING, J.: Generalized myositis fibrosa, 618
FLESCH, J.: Atypical haemophilia, 297
FLESCH-THEBESIUS, M.: Operations on diabetic patients, 78
FLOTHOW, P. G.: Ganglionectomy, 9
FLUHMANN, C. F.: Etiology of uterine haemorrhage, 558
Foetal ascites, 610
Foetal injury by amniotic bands, 21
FOGELSON, S. J.: Treatment of peptic ulcer with mucin, 635
FONTAINE, R.: Thyroidectomy immediately before parturition, 323
FONTÈS, G.: Pathogenic factors in essential pernicious anaemia, 315
Foot-and-mouth virus, experiments with, 217
FORBUS, W. D.: Miliary aneurysms of cerebral arteries, 24
Forceps delivery and fibroma praevia, 207
FORNI, G.: Osteoma of the humerus, 522
FÖRSTER, R.: The complement-fixation test in gonorrhoea, 70
FOSTER, B.: Acute inflammation of the auditory meatus, 502
FOSTRÖM, A.: The Pirquet reaction in adolescence, 329
FOULON, P.: Lymphogranulomatosis in children, 164
FOUND, N.: Soya bean as a milk substitute, 477
FOUQUET, C.: Local treatment of varicose ulcers, 227
Fourth disease, case of, 368
FOWLER, W. M.: Auricular fibrillation in heart disease, 183
FOX, E. C.: Treatment of skin cancer, 76
Fractures of ankle with backward dislocation, 395
Fractures, infiltration anaesthesia in, 153
Fractures, open operation in, 7
Fractures at the upper end of the radius, 320
FRANCK, A.: Ureteral pyelography, 554
FRANK, Helen: The general therapeutic value of ergotamine, 573
FRANK, M: The causal organisms in *B. coli* pyuria, 582
FRIED, J.: Sulphur in tabetic optic atrophy, 634
FRIEDLAENDER, B.: Pernocton as an anaesthetic, 358
FRIEDMAN, B.: Argyrosis of the cornea, 575
Frontal lobe, compression of causing epilepsy, 3
Frost-bite, joint disease from, 300
FRUHINSHOLZ, A.: Rapid accouchement by method of Delmas, 23
Fruit treatment of diarrhoea in children, 105
FUNK, C.: Anaemia and diet, 291
FUTAGI, Y.: Non-specificity of the scarlet fever streptococcus, 290

G.

Gall-bladder disease and carbohydrate metabolism, 615
Gall-stone ileus, varieties of, 54
Ganglionectomy, 9
GARDÈRE, C.: Tetany complicating enteric fever, 222
GARIPUY: Fibroma praevia and forceps delivery, 207
Gastric evacuation, 101
Gastric function, estimation of, 27
Gastric juice of dogs in treatment of pernicious anaemia, 377
Gastric syphilis. *See* Syphilis
Gastric tissue of swine in pernicious anaemia, 424
Gastric ulcers. *See* Ulcer
Gastric. *See also* Stomach
GASUL, B. M.: Percutaneous diphtheria immunization, 355
GATÉ: Gold pigmentation of the skin, 404
GAWLER, M. L.: Trypaflavine in typhoid fever, 553
GEBELE: Iodine therapy in exophthalmic goitre, 306
GEDDES, A. K.: Artificial feeding in infants, 83
GEHRET, A. M.: Ether hyperglycaemia, 604
GEISINGER, J. F.: Extravasation from the ureter, 321
General paralysis. *See* Paralysis
GERGELY, G.: Treatment of gonorrhoea, 644
Germany, undulant fever investigations in, 314
Germicidal properties in soaps, 212
GERSTENBERGER, H. J.: Treatment of chorea, 151
GERVAIS, A.: Injection treatment of varicose veins, 443
Gestation, ectopic, 206, 232, 288—Radiological diagnosis of, 288
Gestation, hormones of, 64
Gestation in generalized neurofibromatosis, 66
Gestation. *See also* Pregnancy
GIOVANNI, P.: The titre of isoagglutinating serums, 386
GIRALDI, J. J. J.: Abdominal symptoms in acute rheumatism, 142
Glands, bronchial, latent and occult tuberculous infection of, 411
Glandular extracts in labour, 41
GLASER, M. A.: Trichlorethylene in trigeminal neuralgia, 597
GLASS, J.: Etiology of sero-fibrinous pleurisy, 366
Glaucoma, operative treatment of, 574
Glomerular nephritis, acute, in childhood, 636
Glutathione in ether narcosis, 463
Glycaemia, estimation of, 541
GOETSCH, A.: Undescended testis, 629
GOFF, B. H.: The perivaginal fascia in nulliparae, 177
Goitre, exophthalmic: The thymus in, 272—Iodine therapy in, 305, 306—Operation for, 520
Goitre, surgical treatment of, 243
Goitre. *See also* Graves's disease *and* Hyperthyroidism
Goitres, adenomatous, 246
Gold pigmentation of the skin, 404
Gold treatment. *See* Sanocrysin
GOLDBERG, R.: Essential or familial haemophilia, 437
GOLDMAN, D.: Varicella with blood picture simulating leukaemia, 144
GOLDMAN, T.: Treatment of meningococcal meningitis, 525
GOLDSTEIN, A. E.: Post-operative urinary incontinence, 32
Gonococcal chancre, 621
Gonorrhoea, chronic, curetting in, 431
Gonorrhoea, complement-fixation test in, 70
Gonorrhoea of the rectum, 258
Gonorrhoea, treatment of, 644
GOOD, L. P.: Retinomycosis of the abdomen, 348
GOODALL, J. R.: Toxaemias of pregnancy, 285
GORDON, A.: Intraspinal magnesium sulphate for intolerable pain, 599
GOTTLIED, E.: Late effects of the specific treatment of syphilis, 47
Gouin's test for syphilis, 25
GOUNELLE, H.: The influence of intense effort upon the leucocyte count, 236
GRANDSTAFF, F. L.: Combination anaesthesia, 154
GRANT, R. L. T.: Obliteration of the common bile duct, 519
GRANZOW, J.: Foetal injury by amniotic bands, 21
Graves's disease: Results of *x*-ray treatment in, 308—Surgical treatment of, 394. *See also* Goitre *and* Hyperthyroidism
GRAYBIEL, A.: Salyrgan as a diuretic, 326
GRÉ: Massive doses of sodium salicylate in acute rheumatism, 353
GREENE, E. I. and J. M.: Fatal thyroid crisis following injection of a varicose vein, 594
GROTE, L. R.: Operations on diabetic patients, 78
GREEN-ARMYTAGE, V. B.: Lower Caesarean section, 577
GRULEE, C. G.: Intraperitoneal administration of iron, 278
GUGGENHEIMER, H.: Treatment of the vomiting of pregnancy, 536
GUILD, Harriet G.: Acute glomerular nephritis in childhood, 636
GUPTA, N.: Foetal ascites, 610
GURDJIAN, E. S.: Traumatic ulnar neuritis, 626
GUTIÉRREZ, R.: Renal tuberculosis, 474
GUTTMACHER, A. F.: Induction of labour by membrane rupture, 640
GUTZEIT, K.: Gastric juice of dogs in treatment of pernicious anaemia, 377
Gynaecological conditions, the blood sedimentation rate in, 337

H.

Haemic effects of quinine and alkalis in malaria, 43
Haemolytic anaemias. *See* Anaemias
Haemophilia, atypical, 297
Haemophilia, essential or familial, 437
Haemoptysis, tuberculous, treatment of, 632
Haemorrhage, endometrial, 405
Haemorrhage in delivery of hydatidiform mole, 178
Haemorrhage, post-partum, 284
Haemorrhage, uterine, etiology of, 558
Haemorrhagic lesions caused by *Clostridium welchii*, 215
Haemorrhagic nephritis, acute, in childhood, 330
Haemostatic action of Congo red, 80
Hallux valgus, radical cure of, 473
HAMPIL, B.: Influence of soap on antiseptics, 487
Hand, chondromas of the, 447
HANNS, A.: Enteric fever during the war, 46
HARDING, W. G.: Toxic symptoms during cinchophen administration, 327
Harmine or Yagéine, 198
HARRIS, E. H. R.: Sublingual mumps with oedema of tongue, 267
HARRIS, K. E.: Etiology of urticaria, 645
HARRIS, L. J.: The mode of action of vitamin D, 581
HARRIS, R. G. S.: Renal sympatheticotonus and sympathectomy, 347
HARRIS, S. H.: Renal sympatheticotonus and sympathectomy, 347
HARTFALL, S. J.: Latent and occult tuberculous infection of bronchial glands, 411
HARTUNG, E. F.: Endocrine factors in migraine, 74
HARTTUNG, H.: Examination of the fifth lumbar vertebra, 425
HASKELL, B.: Calcium and parathyroid in chronic ulcerative colitis, 354
HEALY, T. M.: Rupture of the uterus during labour, 289
Heart, aneurysm of, diagnosis of, 93. *See also* Aneurysm
Heart disease, auricular fibrillation in, 183
Heart disease, specific hormone treatment of, 423
Heart disease in pregnancy, 111
Heart failure and metabolism, 537
Heart, primary, tumours of, 125
Heart. *See also* Cardiac
HEDBLOM, C. A.: Surgical treatment of bronchiectasis, 417
HEDERER, C.: Splenic extract in malarial anaemia, 199
HEIMANN, H. L.: Myocardial diseases, 263
Heliotherapy and health, 514
HELMHOLZ, H. F.: The ketogenic treatment of epilepsy, 56
Hemiplegia, spastic, following post-vaccinal encephalitis, 187
HENDERSON, V. E.: Bromide and iodide therapy, 528—The administration of salicylates, 599
HENDERSON, Y.: Neo-natal asphyxiation, 429
Hepatic insufficiency, 489
"Hepatic tiflostasis," 269
Heredity in psoriasis, 253
Hernia, diaphragmatic, congenital, 448
Hernia, inguinal, injection treatment of, 472
Herpes labialis, direct transmission of, 586
Herpes zoster, sodium iodide in, 453
Herpes zoster and varicella, 566—The relationship of, 180
HERRMANN, J.: Gastric juice of dogs in the treatment of pernicious anaemia, 377
HESS, P.: Results of *x*-ray treatment in Graves's disease, 308
HESSELTINE, H. C.: Monilial vulvo-vaginitis, 503
HEYNEMANN, T.: Early diagnosis of uterine carcinoma, 134
HIBBS, W. G.: Mixed renal tumours in infancy and childhood, 146
Hind-brain, vascular lesions of the, 19. *See also* Medulla
Hirschsprung's disease, 420
Histamine and utero-placental apoplexy, 642
HJÄRNE, U.: Prognosis in spasmophilia, 490
Holland, Weil's disease in, 5
HOLMES, A. D.: The relation of vitamin D to irradiated ergosterol, 313
HOOKEY, J. A.: Keratoma senile and verruca senilis, 61
HOPKINS, H. H.: Asymptomatic neurosyphilis, 264
Hormone, cortical, in Addison's disease, 15
Hormone, female sex, in pregnancy, 426
Hormone, specific, treatment of heart disease, 423
Hormone of the suprarenal gland in treatment of Addison's disease, 352
Hormone test for pregnancy, 155
Hormone treatment of morbid menstrual conditions, 460
Hormones of gestation, 64
HORTOPAN, D.: Antigangrene serum in scarlet fever, 571
HOSHIZAKI, S.: Non-specificity of the scarlet fever streptococcus, 290
HOSOYA, S.: The preparation of tetanus anatoxin, 539
HOTTINGER, A.: Toxic diphtheria, 189
HOWARD, Isabel: The action of liver extract on blood regeneration, 237
HUBERTI, A. Torra: Treatment of cancer of the prostate and bladder, 446
HUGHES, T. A.: The haemic effects of quinine and alkalis in malaria, 43
HUHNER, M.: Unusual cases of priapism, 120
Humerus, osteoma of the, 522
HURST, A. F.: Treatment of carbohydrate dyspepsia, 303
Hydatid cysts of lung, 346
Hydatidiform mole, chorion-epithelioma, and Zondek-Ashheim reaction, 534
Hydatidiform mole, haemorrhage in delivery of, 178
Hyperglycaemia, ether, 604
Hyperpyrexial treatment of dementia paralytica 226
Hypertension, arterial: Rational treatment of, 79—Bismuth subnitrate in, 201—Treatment of idiopathic, 325

Hyperthyroidism, results of treatment by *x* rays in, 308. *See also* Goitre *and* Graves's disease
Hypertonic saline solution, rectal injections of, 351
Hypoglycaemia, mental symptoms of, 515
Hypothyroidism with xanthoma multiplex, 63
Hysterectomy, subtotal, cancer of the cervix after, 609

Iceland, epidemics of acute myalgia in, 220
Ileus, gall-stone, varieties of, 54
Ileus, post-operative, 273
IMANITOFF, F.: Therapeutic use of the reflex action of the round ligament, 114
Incontinence of urine, post-operative, 32
Infants, artificial feeding in, 83
Infarction, pulmonary, and typhoid phlebitis, 33
Infections, acute, and plasma volume, 465
Infectious diseases, tonsillar predisposition to, 638
Inflammatory conditions treated with benzyl cinnamic ether, 12
Influenza and puerperal infection, 333
INGALL, M.: Agranulocytosis, 564
Inguinal hernia. *See* Hernia
Innervation, dual, of striated muscle, 433
INNES, J. R. M.: The mode of action of vitamin D, 581
Insulin in diabetes, oily solutions of, 552
Insulin and epinephrine in fasting children, 68
Insulin oedema, 369
Insulin, ulcers treated locally with, 13
Insulin in wasting following cholelithiasis, 196
Insulinaemia in the fat and thin, 410
Intelligence in infants, measurement of, 204
Intestinal perforation in paratyphoid B fever, 298
Intestinal tumours. *See* Tumours
Intestine, small: Traumatic perforation of without external injury, 77—Carcinoid tumours of the, 595
Intradermal reactions in early and late allergic syphilis, 88
Intrathoracic tumours. *See* Tumours
INTROZZI, A. S.: Treatment of the fibrocystic ovary, 87
Iodide and bromide therapy, 528
Iodine, nascent, in pulmonary tuberculosis, 450
Iodine therapy in exophthalmic goitre, 305, 306
Iron: Administration of, 250—Intraperitoneal administration of, 278
Iron metabolism and jaundice, 613
INSIGLER, F. J.: Pseudo-myxoma peritonei, 322
Isoagglutinating serums. *See* Serums

J.

JACKSON, A. S.: Iodine therapy in exophthalmic goitre, 305
JACOBSON, J.: Treatment of inflammatory conditions with benzyl cinnamic ether, 12
JAENSCH, P. A.: Etiology of encephalitis in childhood, 583
JAKSY, J.: Renal function tests in hypertrophy of the prostate, 563
JAMESON, J. P. S.: Preventability of eclampsia, 461
Jaundice, catarrhal, diet in, 130
Jaundice and iron metabolism, 613
JAUSION, H.: Injection treatment of varicose veins, 443
JEANNENEY, G.: Treatment of post-operative colic due to flatus, 166
JEFFERSON, R. A.: Malaria therapy in neurosyphilis, 496
JENNER, T.: Estimation of gastric function, 27
JENSEN, C.: Control of diphtheria in institutions, 390
JOHNS, F. S.: Appendicitis in the middle-aged, 8
JOHNSON, G. S.: Malaria therapy in neurosyphilis, 496
JOHNSON, W. O.: Intrinsic carcinoma of the larynx, 381
JOHNSTON, F. D.: Ethylene gas explosions, 481
Joint disease from frost-bite, 200
JORDAN, A.: Combined treatment of general paralysis, 451
JOSSERAND: Gold pigmentation of the skin, 404

K.

KAHN, H.: Treatment of malignant tumours with radio-active bismuth, 193
Kahn and Wassermann tests compared, 505
KAISER, A. D.: Tonsillar predisposition to infectious diseases, 638
Kala-azar, organic antimony in, 328
KAPPIS, M.: Treatment of purulent arthritis of the knee, 419
KARTOON, L. B.: Treatment of peptic ulcer, 128
KASMAN, L. P.: Amytal in spinal anaesthesia, 482
KEGEL, A. H.: Percutaneous diphtheria immunization, 355
KEHOE, R. A.: Absorption of tetra-ethyl lead, 538
KEITH, H. M.: The ketogenic treatment of epilepsy, 56
KELLER, R.: Operability in carcinoma of the cervix, 20
KELLY, G. L.: The female sex hormone in pregnancy, 428
Keratoma senile and verruca senilis, 61
Ketogenic treatment of epilepsy, 56
KEY, J. A.: Fractures of the upper end of the radius, 320
Kidney, excretion of water and salts from the, 408
Kidney, the solitary, treatment of stone in, 169
Kidney and spleen, rupture of, 52
Kidney. *See also* Renal
KING, G.: Eclampsia in China, 257
KITTINGER, A.: Milker's whitlow, 55
KLEINBERG, S.: Spondylitis deformans, 518
KLINGER, P.: The glucosides of squill in acute scarlatinal nephritis, 499
KNAUER, H.: Etiology of encephalitis in childhood, 583
Knee, purulent arthritis of, treatment of, 419
KNIGHT, B. C. J. G.: The germination of tetanus spores, 45
KNIGHT, R. T.: Pulmonary complications in general anaesthesia, 39
KNOTT, F. A.: Treatment of carbohydrate dyspepsia, 303
KÖHLER, R.: Hormone treatment of morbid menstrual conditions, 460
KOHN, J. L.: The lungs after measles, 591
KOIRANSKY, H.: The lungs after measles, 591
KÖNIG, W.: Causes of thrombosis, 225
KORTHOF, G.: Incidence of Weil's disease in Holland, 5
KOSTER, H.: Amytal in spinal anaesthesia, 482
KRAUSS, F. L.: Linitis plastica, 627
KRETSCHMER, H. L.: Mixed renal tumours in infancy and childhood, 146
KROGH-LUND, G.: Pasteurellosis of rabbits, 26

L.

LABBÉ, M.: Pernicious anaemia resistant to liver treatment, 412—Hepatic insufficiency, 489
Labour: Accouchement, rapid, by method of Delmas, 23—In elderly primipara, 407—Fibroma praevia and forceps delivery, 207—Glandular extracts in, 41—Induction of, 156—Induction of by membrane rupture, 640—And pregnancy in the elderly primipara, 361—Rupture of the uterus during, 289—Trial, in contracted pelvis, 158—Uterine hypertony in successive, 608
LAFFONT: Rapid accouchement by method of Delmas, 23
LANDAU, A.: Etiology of sero-fibrinous pleurisy, 366
LANDSMAN, A. A.: Anal chancre, 585
LANGE, B.: Bovine tubercle bacilli as a cause of phthisis, 486
LANGE, M.: Ankle fractures with backward dislocation, 395
LANSBURY, J.: The cortical hormone in Addison's disease, 15
Laparotomy, minimal exploratory, 372
LARREGLE, P.: Pregnancy and tuberculous laryngitis, 485
Laryngeal complication of quinsy, 379
Laryngitis, tuberculous, and pregnancy, 485
Larynx, cancer of. *See* Cancer
LASSERRE, C.: Spina bifida treated by operation, 596
LATHURAZ-VIOLLET, H.: Rupture of the spleen and left kidney, 52
LAURENT, M.: Vaccine treatment of typhoid osteo-arthritis, 81
Lead poisoning, effects of on vision, 165
Lead, tetra-ethyl, absorption of, 538
LÉCHELLE, P.: Pulmonary embolisms in developing myocardial infarct, 510
LECOCQ, J. F.: Osteomyelitis variolosa, 449
LEECH, C. B.: The prophylactic value of salicylates in rheumatic manifestations, 149
LEES, J. M.: Rectal narcosis in ophthalmic surgery, 38
LEIKVAM, J.: Estimation of the Pirquet reaction, 389
LEJWA, A.: Anaemia and diet, 294
LÉLU, E.: Oily solutions of insulin in diabetes, 552
LEMAIRE, A.: Yagéine or harmine, 198
LENZ, R.: Etiology of chorea, 338
LÉONARD, P.: Spina bifida treated by operation, 596
LÉPINE, P.: Etiology of disseminated sclerosis, 560
Leprosy, treatment of, 277—With chaulmoogra oil, 400
LEREBOULLET, P.: Vaccinal splenomegaly in infants, 6
LERICHE, R.: Primary tumours of the heart, 126
Leucocyte count, the influence of intense effort upon, 236
Leukaemia simulated by varicella, 144
LEVEUF, J.: Pseudarthroses of the neck of the femur, 373
LEVIN, L.: Prognostic significance of precordial pain, 317
LEVIN, S. J.: Calcium gluconate in oedema, 527
LEVRAT, M.: Nephritis caused by trypaflavine, 182
LÉVY, J.: Massive doses of sodium salicylate in acute rheumatism, 353
LÉVY-SOLAL: Treatment of inflammatory conditions with benzyl cinnamic ether, 12
LEWY, A.: Sodium iodide in nasal infections, 350
LICHTENSTEIN, A.: Scarlet fever in Sweden, 468—Relapses in scarlet fever, 544
LIÈGE, R.: Lymphogranulomatosis in children, 164
Ligament, broad, early endometrial invasion of the, 643
Ligament, round, therapeutic use of the reflex action of the, 114
Lingual tuberculosis. *See* Tuberculosis
Linitis plastica, 627
LINTZ, W.: Respiratory disorders and dental infection, 239
LIORET, M.: Measles meningitis, 391
Lipiodol injections in neuralgia and rheumatic pains, 248
Lipiodol injections, intrauterine, in sterility, 234
Lipoma, arborescent, of the tendon sheaths, 475
LIPSHUTZ, B.: Renal carbuncle, 493
Litholapaxy, 568
LITTLEJOHN, C. W. B.: Low backache, 167
Livedo reticularis, 252
Liver diet, histological effects of, 213
Liver extract, action of on blood regeneration, 237
Liver therapy intensifying asthma, 295
Liver treatment, pernicious anaemia resistant to, 412
LIVEZEY, Mary M.: Angina pectoris, 511
LLOYD-WILLIAMS, I. H.: Syphilitic arthritis, 545
LOBO-ONEL, C.: Oily solutions of insulin in diabetes, 552
LOEPER, M.: Vaccinotherapy in acute articular rheumatism, 14—Treatment of peptic ulcer, 129—Treatment of gastric ulcers by pepsin, 197
LOFF, R.: Cerebral aspergillosis, 367
LONG, P. H.: Experimental transmission of the common cold, 611
LOPEZ, C. P.: Injection treatment of varicose veins, 412
LÖVEGREN, E: Carcinoma of the vagina, 606
LOWENSTEIN, P. S.: Staphylococcal septicaemia, 421
LOWER, W. E.: Diverticula of the urinary bladder, 371
LUCAS, G. H. W.: Bromide and iodide therapy, 528—The administration of salicylates, 600
LUDWIG, F.: Actino-sensitivity of oestrin, 542
Lumbar vertebra. *See* Vertebra
Lumbo-aortic plexus, anaesthetization of the, 580
Lumen of the Fallopian tube, occlusions of the, 209
LUNDE, S.: The source of infection in tuberculosis, 316
LUNDY, J. S.: Barbitone derivatives in intravenous anaesthesia, 37
Lung. *See* Pulmonary
Lung cancer. *See* Cancer
Lungs after measles, 591
LUTEMBACHER, R.: An auscultatory sign of defective conduction in mitral stenosis, 622
LUTTEROTTI, O.: Varieties of gall-stone ileus, 54
LUTZ, J. R.: Treatment of sprue, 170
LYALL, A.: Xanthoma multiplex with hypothyroidism, 63
Lymphadenoma, primary malignant, *x*-ray treatment of, 555
Lymphocytic meningitis. *See* Meningitis
Lymphocytosis associated with ovarian new growths, 383
Lymphogranulomatosis in children, 164
Lymphogranulomatosis, inguinal, subacute, 94

M.

MCCOMB, Emily: Experimental transmission of the common cold, 611
MCCORMICK, R.: Herpes zoster with varicella, 566
MACFEE, W. F.: Early signs of cancer of the tongue, 393
MCHENRY, E. W.: The Aschheim-Zondek test for pregnancy, 639
MCHUGH, J. P.: Gastric and duodenal ulcer, 569
MCKENZIE, Dan: Pathogenesis of aural cholesteatoma, 500
MACKERETH, J. G.: Nascent iodine in pulmonary tuberculosis, 450
MCKIM, L. H.: Treatment of phalangeal bone lesions, 31
MCLEOD, P. A.: Treatment of placenta praevia, 605
MCMICHAEL, J.: Local vascular changes in splenic anaemia, 119
MCNUTT, S. H.: Acid production by Brucella strains, 488
MAGE, S.: Neocaine as a spinal anaesthesia, 603
Magnesium sulphate, intraspinal injections of from intolerable pain, 599
MAIGNON, F.: Seasonal variations in resistance to disease, 387
MAIRANO, M.: Renal innervation, 116
Malaria, haemic effects of quinine and alkalis in, 43
Malaria, pernicious, the plasmodium of, 291

Malaria, plasmoquine in, 454
Malaria, quinine treatment of, 397
Malaria therapy in dementia paralytica, 36
Malaria therapy in neurosyphilis, 496
Malaria, treatment of, 397, 598
Malaria and stovarsol in the treatment of general paralysis, 451
Malarial anaemia. *See* Anaemia
MALCOVATI, P.: Conservative operation for adnexal inflammation, 254
Malignant tumours. *See* Tumours
Malignant. *See also* Cancer
MALLET, L.: Ovarian cancer, 579
MALONEY, E. R.: Cutaneous calcinosis, 402
MANCHINI, F.: Abolition of drainage in purulent peritonitis, 630
MANDEL, L.: Types of enuresis, 530
MANSOUR, M.: Syphilis without chancre, 512
Marble skin. *See* Cutis marmorata
MARCHIAFAVA, E.: The plasmodium of pernicious malaria, 291
MARCUS, I. H.: Insulin oedema, 369
MARGOLIS, H. M.: Calcareous aortic valvular disease, 491
MARIO, T.: Surgical treatment of Raynaud's disease, 494
MARKSON, M.: Etiology of sero-fibrinous pleurisy, 366
Marriage and tuberculosis, 28
MARSH, H. T.: Undulant fever in New South Wales, 619
MARSHALL, F. W.: The blood sugar content in later life, 365
MARTENS, M.: Acute necrosis of the pancreas, 349
MARTIN, R.: Lymphogranulomatosis in children, 164
MARTUSCELLI, G.: Laryngeal complication of quinsy, 379
MASSON, J. C.: Extrauterine pregnancy, 67
MASTER, A. M.: Meningococcaemia with endocarditis, 370
Mastitis, cystic, chronic, 359
MASUCCI, U.: Senile pulmonary tuberculosis, 1
MATHÉ, C. P.: Treatment of stone in the solitary kidney and ureter, 169
MATHEWS, R. F.: Vesical tumours, 445
MATHIEU, A. (and others): The blood sedimentation rate in gynaecological conditions, 337
MATWEJEWA, W. T.: Salpingostomy for sterility, 384
MATZGER, E.: Asthma intensified by liver therapy, 295
MAXWELL, J. P.: Labour in elderly primipara, 407
MAZAL, V.: Treatment of pituitary tumours, 309
MAZZOLA, V.: Post-operative obstetric embolus, 86
MEAKER, S. R.: Causative factors in sterility, 208—Early diagnosis of extrauterine pregnancy, 334
Measles complicated by diabetes insipidus, 92
Measles encephalitis, 589
Measles, the lungs after, 591
Measles meningitis, 391
Measles, meningo-encephalitis following, 620
Measles pneumonia, pseudo-tuberculous, 266
Medulla, vascular lesions of the, 19. *See also* Hind-brain
MEHRTENS, H. G: Intermittent claudication relieved by hot baths, 276
MELCHIOR, M.: Percaine in dental operations, 152
Membrane rupture for the induction of labour, 640
MENDES, J. Souza: Minimal exploratory laparotomy, 372
MÉNÉGAUX, G.: Treatment of parotid epithelioma, 444
Meningitis, lymphocytic, benign, 75
Meningitis, measles, 391
Meningitis, meningococcal, 516—In infants, 415, 531—Treatment of, 255
Meningitis, pneumococcal, recovery from, 97
Meningitis, serous: Epidemic, 162—Acute epidemic, 467
Meningitis, serous, syphilitic, ocular manifestations of, 588
Meningitis, uraemic, 123
Meningococcaemia with endocarditis, 370
Meningococcal meningitis. *See* Meningitis
Meningococcal septicaemia, serotherapy in, 58
Meningo-encephalitis following measles, 620
MENNE, F. R.: Occlusions of the lumen of the Fallopian tubes, 209
MENNINGER, W. C.: Juvenile dementia paralytica, 175
Menstrual conditions, morbid, hormone treatment of, 460
Menstruation: Epilepsy and, 311—And the ureters, 557
Mental cases, acute delirium in, 18
Mental symptoms of hypoglycaemia, 515
Mental symptoms, post-traumatic, 188
Mercurialism following the application of mercurochrome, 376
Mercurochrome administration followed by mercurialism, 376
MERRITT, H.: Vascular lesions of the hind-brain, 19
MESSERLI, Fr. M.: Cutaneous pigmentation and health, 514
Metabolism, basal, in pulmonary tuberculosis, 617
Metabolism, carbohydrate: Gall-bladder disease and, 615—Of the skin, 561
Metabolism and heart failure, 537
Metabolism, iron, and jaundice, 613
METTIER, S. R.: Administration of iron, 250
MEYER, J.: Treatment of peptic ulcer, 128
MEYER, P.: Uraemia without kidney disease, 240
MEYERDING, H. W.: Low backache, 168
MICHAEL, N. A.: The Kahn and Wassermann tests, 506
MICHAUX, L.: Treatment of gastric ulcers by pepsin, 197
MICKS, R. H.: Eclampsia in a diabetic, 40
Migraine, endocrine factors in, 74
MIKULOWSKI, W.: Pseudo-tuberculous measles pneumonia, 266
Milk injections in erysipelas, 127
Milk substitute, soya bean as a, 477
Milkers' whitlow. *See* Whitlow
MILLER, T. H.: Bismuth arsphenamine in early syphilis, 601
MILLS, Katherine C.: Experimental transmission of colds by a filterable agent, 63
MINOT, G. R.: Administration of iron, 250
Mitral stenosis an auscultatory sign of defective conduction in, 622
MOELLER, E.: Dietetic treatment of obesity, 479
Mole, hydatidiform, chorion-epithelioma, and the Zondek-Aschheim reaction, 534
Mole, hydatidiform, haemorrhage in delivery of, 178
MOLLARET, P.: Etiology of disseminated sclerosis, 560
MOMBAERTS, J.: Radiology in urinary diseases, 307
MONALDI, V.: Bilateral simultaneous artificial pneumothorax, 194
MONCRIEFF A.: The intradermal tuberculin reaction, 344
Monilial vulvo-vaginitis, 503
MONIZ, E.: Cerebral aspergillosis, 367
MONNEROT-DUMAINE, M.: Infection due to aberrant paratyphoid bacilli, 364
MONOD, R.: Cancer of the cervix after subtotal hysterectomy, 609
MONRAD, S.: The tuberculin reaction in the first three years of life, 91
MONTGOMERY, J. C.: Diphtherial infection of the umbilicus, 48
MOORE, J. E.: Treatment of cardio-vascular syphilis, 35—Asymptomatic neurosyphilis, 264
MORCH, J. R.: Pasteurellosis of rabbits, 26
MOREIRA, M. V.: Gestation in generalized neurofibromatosis, 66
MORGAN, E.: Curability of congenital syphilis, 96
MORGAN, I.: Cyclic vomiting, 331
MORGAN, O. Gayer: Rectal narcosis in ophthalmic surgery, 38
MORIWAKI, J.: Non-specificity of the scarlet fever streptococcus, 290
MORO, E.: Prophylaxis of epidemic poliomyelitis, 186
Morphine, intravenous administration of, 57
MORQUIO, L.: Meningo-encephalitis following measles, 620
MORRISON, W. A.: Torsion and volvulus of the stomach, 547
MORROW, J.: Acute dilatation of the stomach, 517
MORSE, Dorothy L.: Etiology of uterine haemorrhage, 558
MOSCHCOWITZ, E.: Post-arterio-sclerotic pulmonary lesions, 216
MOULONGUET, P.: Ovarian cancer, 579
Mucin in the treatment of peptic ulcer, 635
MÜLLER, A. H.: Treatment of uraemia by *x* rays and thyroxine, 249
MULLER, M. P.: Recklinghausen's disease of bone, 299
Mumps complicated by pancreatitis, 343
Mumps, sublingual, with oedema of tongue, 267
MURARD, J.: Duodenal fistula, 301
MURPHY, W. P.: The action of liver extract on blood regeneration, 237
Muscle, striated, dual innervation of, 433
Myalgia, acute, epidemics of in Iceland, 220
Myelitis, acute benign infectious, 219
MYERS, C. N.: Antimony in therapeutics, 104
Myocardial diseases, 263
Myocardial infarct, developing, pulmonary embolisms in, 510
Myocardial infarction localized by the electrocardiogram, 241
Myopathia infraspinata, 388
Myositis fibrosa, generalized, 618
Myositis, streptococcal, 590

N.

NABARRO, D.: Diagnosis of congenital syphilis, 340
Narcosis, rectal, in ophthalmic surgery, 38
Narcosis. *See also* Anaesthesia
Nasal infections, sodium iodide in, 350
Necrosis of pancreas, acute, 349
Neoarsphenamine in treatment of cardio-vascular syphilis, 35
Neocaine as a spinal anaesthetic, 603
Neoplasm, pulmonary, simulated by dissecting aortic aneurysm, 584
Nephritis, acute, produced by a pneumococcal autolysate, 362
Nephritis, induction of diuresis in, 184
Nephritis, glomerular, acute, in childhood, 636
Nephritis, haemorrhagic, acute, in childhood, 330
Nephritis in pregnancy, 233
Nephritis, scarlatinal, acute, the glucosides in, 499
Nephritis caused by trypaflavine, 182
Nerve, acoustic, involvement of in epidemic encephalitis, 380
Nerve, pelvic sympathetic, resection of, 641
Nerves, cranial, paralysis of, 457
Nervous control, central, of the ocular mechanisms, 281
Nervous tissue lesions, bacterially produced, 71
NETTER, A.: The relationship of herpes zoster and varicella, 180
Neuralgia treated by lipiodol injections, 248
Neuralgia, trigeminal, trichlorethylene in, 597
Neuritis, traumatic ulnar, 626
Neurofibromatosis, generalized, gestation in, 66
Neuro-psychiatric conditions, sodium amytal in, 106
Neurosyphilis, asymptomatic, 264
Neurosyphilis, malaria therapy in, 496
Neurosyphilis, tryparsamide in, 378
New South Wales, undulant fever in, 619
NEYMANN, C. A.: Hyperpyrexial treatment of dementia paralytica, 226
Nicolas-Favre's disease. *See* Lymphogranulomatosis
NIELSEN, O. J.: Specific hormone treatment of heart disease, 423
NILES, H. D.: Heredity in psoriasis, 253
Nirvanol in treatment of chorea, 172
NISSEN, N. I.: Late effects of the specific treatment of syphilis, 47
NISSEN, R: Treatment of bronchiectasis in childhood, 203
NOBÉCOURT, P.: Lymphogranulomatosis in children, 164
Norway, tularaemia in, 268
NOVAK, J.: Tubal inflation and salpingography, 85
NOVÉ-JOSSERAND, L.: Gold pigmentation of the skin, 404
NYE, R. N.: Streptococci in infectious (atrophic) arthritis and rheumatic fever, 89

O.

Obesity, dietetic treatment of, 479
Obstetric embolus, post-operative, 86
Obstetrical analgesia. *See* Analgesia
Obstruction of pylorus relieved by medical treatment, 228
Ocular hypertensive conditions, 576
Ocular manifestations: Of trichinosis, 283—Of syphilitic serous meningitis, 588
Ocular mechanisms, central nervous control of the, 281
Ocular. *See also* Eye *and* Ophthalmic
O'DONNELL, W. S.: Calcium gluconate in oedema, 527
Oedema, calcium gluconate in, 527
Oedema, insulin, 369
Oedema of tongue with sublingual mumps, 267
Oesophagus, idiopathic dilatation of the, 103
Oestrin, actino-sensitivity of, 542
Oil, chaulmoogra, in the local treatment of leprosy, 400
OISEAU, H.: Influenzal polyneuritis, 319
OLEF, I.: Enumeration of blood platelets, 115
OLKON, D. M.; Etiology of epilepsy, 173
OLSEN, J.: The diet in pulmonary tuberculosis, 150
Ophthalmia, sympathetic, pathogenesis of, 282
Ophthalmic surgery, rectal narcosis in, 38
Optic atrophy, tabetic, sulphur in, 634
ORNSTEEN, A. M.: Amyotrophic lateral sclerosis in epidemic encephalitis, 17
ORNSTEIN, G. G.: Benign acute pulmonary tuberculosis, 543
ORR, D.: Bacterially produced nervous tissue lesions, 71
"Orr" method of treating osteomyelitis, 98
ORSÓS, E. J.: Curetting in chronic gonorrhoea, 421
OSBORNE, S. L.: Hyperpyrexial treatment of dementia paralytica, 226
Osteitis, fibro-cystic, generalized, and parathyroid tumour, 495
Osteo-arthritis, typhoid, vaccine treatment of, 81
Osteoma of the humerus, 522
Osteomyelitis of the fibula, primary, 628
Osteomyelitis treated by the "Orr" method, 98
Osteomyelitis variolosa, 449
Otitis media, chronic, 229
Ouabain in pulmonary embolism in developing myocardial infarction, 510
Ovarian cancer, 579
Ovarian cysts, suppuration in, 135
Ovarian new growth associated with lymphocytosis, 383
Ovarian tumours. *See* Tumours
Ovary and the anterior lobe of the pituitary, 113
Ovary, fibrocystic, treatment of, 87
Oxycephaly with other malformations, 567

P.

PACK, G. T.: Cancer developing in burn scars, 124—Radiation treatment of polycythaemia vera, 133
PADILLA, T.: Localization of myocardial infarction by the electrocardiogram, 241

Paget's disease, injection treatment of, 107
Pain, intolerable, intraspinal magnesium sulphate for, 599
Pain, precordial, prognostic significance in, 317
PANCOAST, H. K.: Examination of the upper respiratory tract, 230
Pancreas, acute necrosis of, 349
Pancreatic extract in the treatment of high blood pressure, 633
Pancreatitis complicating mumps, 343
PAPIN, F.: Intestinal perforation in paratyphoid B fever, 298
Parakeratoses of the ends of the fingers, 401
Paralysis, bulbar, after teeth extraction, 318
Paralysis of the cranial nerves, 457
Paralysis, diaphragmatic, by phrenic evulsion, 53
Paralysis, general, combined (stovarsol and malaria) treatment of, 451
Paralysis of the high adductors, tenodesis in, 570
PARAMORE, R. H.: Etiology of eclampsia, 532
Parapsasm, bilateral facial, 455
Parathyroid and calcium in chronic ulcerative colitis, 354
Paratyphoid bacilli, aberrant, infection due to, 364
Paratyphoid B fever: Intestinal perforation in, 298—With lung complications, 469
Parathyroid tumour and generalized fibro-cystic osteitis 495
PARIENTÉ, M.: Treatment of inflammatory conditions with benzyl cinnamic ether, 12
Parotid epithelioma. *See* Epithelioma
PAROUNAGIAN, M. B.: Treatment of syphilis, 526
Paroxysmal conditions, the effect of anaesthesia on, 466
PARRY, J.: Indications for spinal anaesthesia, 356
PARSONS, L.: Toxic symptoms during cinchophen administration, 327
Parturition, thyroidectomy immediately before, 323
Pasteurellosis of rabbits, 26
PATTEN, B. M.: Circulatory changes at birth, 205
PAUFIQUE: Ocular manifestations of syphilitic serous meningitis, 588
PEARCE, F. V.: Treatment of abortion, 256
PECKHAM, C. H.: Treatment of placenta praevia, 312
PEDLEY, F. G.: Effects of lead poisoning on vision, 165
Pelvic sympathectomy, 65
Pelvic sympathetic, resection of the, 641
Pelvis, contracted, trial labour in, 158
Pepsin in treatment of gastric ulcers, 197
Peptic ulcer. *See* Ulcer
Percaine in dental operations, 152
Pericarditis with effusion, 414
Peritoneal bleeding from perforation by uterine chorion-epithelioma, 430
Peritonei, pseudomyxoma, 322
Peritonitis in colon surgery, prevention of, 224
Peritonitis, purulent, abolition of drainage in, 630
Peritonsillar abscess. *See* Abscess
Perivaginal fascia in nulliparae, 177
Perlèche in adults, 50
Pernicious anaemia. *See* Anaemia
Pernocton as an anaesthetic, 358
PERUTZ, A.: Local treatment of ulcers with insulin, 13
Pessaries and cancer of the vagina, 504
PETRESCO: Pernicious anaemia resistant to liver treatment, 412
PETRINA, E.: Barium chloride in typhoid fever, 498
Phalangeal bone lesions, treatment of, 31
PHANEUF, L. E.: Lower Caesarean section, 578
Phenylcinchoninic acid compounds in treatment of chronic arthritis, 524
Phenyl-ethyl-hydantoin in the treatment of chorea, 151
PHILIPP, E.: Hormones of gestation, 64—The anterior lobe of the pituitary and the ovary, 112
Phlebitis, typhoid, and pulmonary infarction, 33
Phrenic evulsion, diaphragmatic paralysis by, 53
Phthisis. *See* Tuberculosis
Pigmentation, cutaneous, and health, 514
PICTON, L. J.: Amylaceous dyspepsia, 416
PIJOAN, M.: Enhancement of infective power of bacteria, 181
PILCHER, J. D.: Treatment of chorea, 151
PILLSBURY, D. M.: The intrinsic carbohydrate metabolism of the skin, 561
PINELLI, Anna: Urticaria in early infancy, 82
PINELLI, L.: Estimation of glycaemia, 541
PINI, G.: Urethral syphilis, 471
Pirquet reaction: In adolescence, 329—Estimation of the, 389
PITTS, H. C.: Radium treatment of carcinoma of the cervix, 287
Pituitary, anterior lobe of, and the ovary, 112
Pituitary tumours, treatment of, 309
Placenta, diseases of the, 286
Placenta praevia: Prophylactic treatment of, 605—Surgical treatment of, 113, 312
Plasma volume and acute infections, 465
Plasmodium of pernicious malaria, 291
Plasmoquine in malaria, 454
PLASS, E. D.: Monilial vulvo-vaginitis, 503
Pleurisy, sero-fibrinous, etiology of, 366
Pneumococcal autolysate producing acute nephritis, 362
Pneumococcal meningitis, recovery from, 97
Pneumonia, digitalis in, 304
Pneumonia in infancy, artificial pneumothorax in, 102
Pneumonia, lobar, treated unsuccessfully with convalescent serum, 34
Pneumonia, pseudo-tuberculous measles, 267
Pneumothorax, artificial, in pneumonia in infancy, 102
Pneumothorax, artificial, bilateral, simultaneous, 194
PODOLSKY: Treatment of chronic arthritis, 524
Poisoning, bromide, chronic, 185
Poisoning, lead, effects of, on vision, 165
POLAK, J. O.: Post-operative obstetric embolus, 86
Poliomyelitis, acute, 623
Poliomyelitis, epidemic, prophylaxis of, 186
POLIZZI, S.: Traumatic perforation of the small intestine without external injury, 77
Polycythaemia vera, radiation treatment of, 133
Polyneuritis, epidemic, 624
Polyneuritis, influenzal, 319
Post-partum haemorrhage. *See* Haemorrhage
Post-vaccinal encephalitis. *See* Encephalitis
POULSEN, V.: The diagnosis of pulmonary tuberculosis in childhood, 529
POUPPIRT, P. S.: Intermittent claudication relieved by hot baths, 276
PRATTEN, F. H.: Pulmonary complications of pregnancy, 484
Precordial pain. *See* Pain
Pregnancy, Aschheim-Zondek test for, 639
Pregnancy, chlorotic anaemia of, 179
Pregnancy, diagnosis of by the blue staining of the vulva, 382
Pregnancy, ectopic, full-term, 232
Pregnancy, extrauterine, 67—Early diagnosis of, 334
Pregnancy, heart disease in, 111
Pregnancy: Hormone test for, 155—The female sex hormone in, 428
Pregnancy and labour in the elderly primipara, 361
Pregnancy, nephritis in, 233
Pregnancy and parturition, blood changes during, 462
Pregnancy, pulmonary complications of, 484
Pregnancy, pyelonephritis in, 360
Pregnancy, tabes complicating, 235
Pregnancy, toxaemias of, 285
Pregnancy and tuberculous laryngitis, 485
Pregnancy, ureter changes in, 157
Pregnancy. *See also* Gestation
Priapism, unusual cases of, 120
PRIBRAM, H.: Sugar in therapeutics, 478
PRIGGE, R.: The negative phase in immunity to diphtheria, 436
Proctology, ambulant therapy in, 418
Prostatic hypertrophy, renal function tests in, 563
Protein therapy in salpingitis, 483
Pseudarthroses of the neck of the femur, 373
Pseudomyxoma peritonei, 322
Psittacosis, etiology of, 261
Psoriasis, heredity in, 253
Psoriasis vulgaris, acriflavine in, 62
PUENTE, J. J.: Syphilis of the cervix, 310
Puerperal infection and influenza, 333
Pulmonary collapse, post-operative, etiology of, 432
Pulmonary complications: Of general anaesthesia, 39—Of pregnancy, 484
Pulmonary embolisms in developing myocardial infarction, 510
Pulmonary infarction. *See* Infarction
Pulmonary lesions, discrete, radiography of, 427
Pulmonary lesions, non-tuberculous, treatment of, 72
Pulmonary lesions, post-arterio-sclerotic, 216
Pulmonary tuberculosis. *See* Tuberculosis
Pulmonary. *See also* Lung
PURWIN, P.: Acid production by Brucella strains, 488
Pyelography, ureteral, 554
Pyelonephritis in pregnancy, 360
Pyloric obstruction relieved by medical treatment, 228
Pyrexias, idiopathic, 73
Pyuria, *B. coli* the causal organisms of, 582

Q.

QUÉNU, J.: Congenital diaphragmatic hernia, 448
QUIGLEY, J. K.: Pregnancy and labour in the elderly primipara, 361
QUIN, J. S.: Eclampsia in a diabetic, 40
Quinine and alkalis in malaria, haemic effects of, 43
Quinsy, laryngeal complication of, 379

R.

Radiation treatment of polycythaemia vera, 133
RADICE, L.: Primary osteomyelitis of the fibula, 628
Radiography of discrete pulmonary lesions, 427—In antral (Highmore) disease, 556
Radiological diagnosis: Of scirrhous gastric cancer, 131—Of ectopic gestation, 288
Radiology in urinary diseases, 307
Radiotherapy of ovarian tumour followed by accelerated growth, 559
Radium treatment: Of carcinoma of the cervix, 287, 458, 459—Of cancer of the prostate and bladder, 446
Radius, fractures at the upper end of the, 320
RAIFORD, T. S.: Diagnosis of tumours of the small intestine, 426
RAISZ, D. v.: Chorion-epithelioma without external haemorrhage, 136
RAKE, G.: Acute nephritis produced by a pneumococcal autolysate, 362
RANKIN, F. W.: Prevention of peritonitis in colon surgery, 224
RAPPAPORT, D.: Heart failure and metabolism, 537
RASMUSSEN, R. K.: Epidemics of acute myalgia in Iceland, 220
Raynaud's disease, surgical treatment of, 494
Recklinghausen's disease of bone, 299
Rectal narcosis in ophthalmic surgery, 38
Rectum, gonorrhoea of the, 258
Red, Congo. *See* Congo
REDING, R.: Blood changes during pregnancy and parturition, 462
REEB, M.: Hydatidiform mole, chorion-epithelioma, and the Zondek-Aschheim reaction, 534
REED, A. C.: Administration of emetine in amoebic colitis, 551
Regional anaesthesia. *See* Anaesthesia
REID, W. D.: Heart disease in pregnancy, 111
REINWEIN: Mental symptoms of hypoglycaemia, 515
Renal carbuncle, 493
Renal colic, diathermy in, 280
Renal complications of bismuth therapy, 398
Renal function tests in hypertrophy of the prostate, 563
Renal innervation, 116
Renal insufficiency: Skin coloration in, 30—And azotaemia, 211
Renal surgery, electro-surgical scalpel in, 548
Renal sympatheticotonus and sympathectomy, 347
Renal tuberculosis, 474
Renal tumours, mixed, in infancy and childhood, 146
Renal. *See also* Kidney
Resistance to disease. *See* Disease
Respiratory disorders and dental infection, 239
Respiratory tract, upper, examination of the, 230
REYNOLDS, F. H. K.: Dengue fever, 339
Rheumatic disorders, the prophylactic value of salicylates in, 149
Rheumatic fever: Streptococci in, 89—Vaccine treatment of, 452. *See also* Fever
Rheumatic nodules, structure of, 238
Rheumatic pains treated by lipiodol injections, 248
Rheumatism: Acute abdominal symptoms in, 142—Massive doses of sodium salicylate in, 353
Rheumatism, articular, acute, vaccinotherapy in, 14
Rhinitis, hypertrophic, sodium iodide in, 350
Rhinitis, vasomotor, treated by sclerosing fluid, 108
RHOADS, C. P.: Immunization against vaccinia by virus-serum mixtures, 259
RICE, C. O.: Infiltration anaesthesia in fractures, 153
RICH, C. B.: Convulsions in disseminated sclerosis, 121
RICHE, V.: Suppuration in ovarian cysts, 135
RICHIER: Treatment of vasomotor rhinitis by sclerosing fluid, 108
RIDLER, H. A.: Rupture of uterus following Caesarean section, 42
RIES, J. V.: Actino-sensitivity of oestrin, 542
RILEY, H. A.: Central nervous control of the ocular mechanisms, 281
RIST, E.: Primary cancer of the lung, 11
RITCHIE, E. B.: Yeast factors in superficial dermatitis, 251
RIVIÈRE, M.: Diseases of the placenta, 286
ROBIOLIS, E. H.: Rapid accouchement by method of Delmas, 23
ROGOFF, J. M.: Etiology of Addison's disease, 296
ROLAND, H.: Cholecystectomy without drainage, 392
ROLLAND, J.: Primary cancer of the lung, 11
ROLLET, J.: Ocular manifestations of syphilitic serous meningitis, 588
ROLLINS, P. R.: Pyelonephritis in pregnancy, 360
ROSE, D. K.: Pyelonephritis in pregnancy, 360
ROSENOW, E. C.: Serum treatment of chronic ulcerative colitis, 200
ROSSI, A. Dei: Etiology of post-operative pulmonary collapse, 432
RÖTTH, A.: Argyrosis of the cornea, 575
ROTTHAUS, E.: Dangers of cervical Caesarean section, 176
Round ligament. *See* Ligament
ROWNTREE, L. G.: Treatment of Addison's disease, 352
Rubella, epidemic of, 122
RUELLE, G.: Diagnosis of pulmonary tuberculosis in the infant, 84
RUGGIERI, E.: Glutathione in ether narcosis, 463
RUGGLES, E. W.: Sodium iodide in herpes zoster, 453
RUSSELL: The blood in delirium tremens, 509

S.

ST. JOHN, J. H.: Dengue fever, 339
SABOURAUD, R.: Parakeratoses of the ends of the fingers, 401
Sachs-Georgi test for syphilis, 25
SACKS, G.: Ambulant therapy in proctology, 418
SAETHRE, H.: Oxycephaly with other malformations, 567
SAINTON, Mdlle: Treatment of gastric ulcers by pepsin, 197
SAITZ, O.: The ureters and menstruation, 557
Salicylates, the administration of, 600
Salicylates in rheumatic manifestations the prophylactic value of, 149

Saline solution, hypertonic, rectal injections of, 351
SALOMONSEN, L.: Insulin and epinephrine in fasting children, 68
Salpingitis, protein therapy in, 483
Salpingography and tubal inflation, 85
Salpingostomy for sterility, 384
Salts and water, excretion of from the kidney, 408
SALVESEN, H. A.: Spontaneous tetany in adults, 29—Tularaemia in Norway, 268
Salyrgan as a diuretic, 326
SALZER, M.: Intravenous administration of morphine, 57
SANCHIZ, A.: Treatment of cancer of the prostate and bladder, 446
SANDS, I. J.: Acute benign infectious myelitis, 219
SANFORD, H. N.: Intraperitoneal administration of iron, 278
Sanocrysin in pulmonary tuberculosis, 572
SAVOYE, J.: Tetany complicating enteric fever, 222
Scalpel, electro-surgical, in renal surgery, 548
Scarlatinal nephritis. *See* Nephritis
Scarlet fever. *See* Fever
Scars of burns, cancer developing in, 124
SCHAEFER, H.: Ethyl chloride as a general anaesthetic for children, 357
SCHARPFF, W.: Treatment of high blood pressure with pancreatic extract, 633
SCHEDTLER, O.: Results of extrapleural thoracoplasty, 521
SCHEER, K.: Direct transmission of herpes labialis, 586
SCHEFFER, I. H.: Pancreatitis complicating mumps, 343
SCHIFF, E.: Copper and blood formation, 422
SCHLANGER, P.: *X*-ray treatment of primary malignant lymphadenoma, 555
SCHLECHT, H.: The results of *x*-ray treatment in Graves's disease, 308
SCHLOSSING, H.: The thymus in exophthalmic goitre, 272
SCHMIDT, K. H.: Gastric evacuation, 101
SCHMORELL, H.: Treatment of eclampsia, 535
SCHNAEBELE, R.: Vaccine treatment of rheumatic fever, 452
SCHNEIDER, H.: Acute epidemic serous meningitis, 467
SCHNEIDER, P. F.: A hormone test for pregnancy, 155
SCHTEINGART, M.: Adenomatous goitres, 245
SCHÜFFNER: Bacteriology of yellow fever, 292
SCHUMACHER, P.: Changes in the ureter during pregnancy, 157
SCHWARZ, H.: Heart failure and metabolism, 537
SCHWOB, R.: Dissecting aortic aneurysm simulating pulmonary neoplasm, 584
SCIALOM, A.: Gonococcal chancre, 621
SCIMONE, I.: Excretion of water and salts from the kidney, 408
Scirrhous gastric cancer. *See* Cancer
Sclerosing fluid in the treatment of vasomotor rhinitis, 108
Sclerosis, amyotrophic lateral, in epidemic encephalitis, 17
Sclerosis, disseminated: Convulsions in, 121—Etiology of, 560
SCOTT, W. W.: Electro-surgical scalpel in renal surgery, 548
SCRIMGER, F. A. C.: Idiopathic dilatation of the oesophagus, 103
SEASTONE, C. V.: Immunization against typhus fever, 540
Sebaceous cysts. *See* Cysts
Sedimentation rate in gynaecological conditions, 337
SEGRE, S.: The bactericidal power of the blood in alcoholism, 262
SEIDMANN, R.: Sporadic encephalitis, 163
SEIFFERT, W.: Increase in virulence of the B.C.G. strain, 117
SEMB, C.: Chronic cystic mastitis, 359
Septicaemia, meningococcal, serotherapy in, 58
Septicaemia, staphylococcal, 374, 421
Sero-fibrinous pleurisy, etiology of, 366
Serotherapy in meningococcal septicaemia, 58
Serous meningitis. *See* Meningitis
Serum, antigangrene, in scarlet fever, 571
Serum, blood, cholesterin titre of, 44
Serum, convalescent, unsuccessful in lobar pneumonia, 34
Serum reactions in carcinoma, 260
Serum treatment of chronic ulcerative colitis, 200
Serum treatment of erysipelas, 523
Serums, isoagglutinating, the titre of, 386
SESINI: Rapid accouchement by method of Delmas, 23
SEVER, J. W.: Traumatic separation of the symphysis pubis, 396
Sex hormones. *See* Hormones
SHAMBAUGH, G. F.: Chronic otitis media, 229
SHIBLEY, G. S.: Experimental transmission of colds by a filterable agent, 69
SHRIVASTAVA, D. L.: The haemic effects of quinine and alkalis in malaria, 43
SICHERT-MODROW, I.: Experiments with foot-and-mouth virus, 217
SIEBERT, P.: Etiology of gastric ulcer, 409
SIEVERS, O.: Serum reactions in carcinoma, 260
Silicosis and tuberculosis, 139
SIMMONS, J. S.: Dengue fever, 339
SIMON, T.: The measurement of intelligence in infants, 204
MSON, F. W.: Asbestosis bodies in the sputum, 261
SINTON, J. A.: Treatment of malaria, 397
Sinusitis in children, sequels of, 637
Skin cancer. *See* Cancer
Skin, carbohydrate metabolism of the, 561
Skin, clinical chemistry of the, 363
Skin coloration in renal insufficiency, 30
Skin, gold pigmentation of the, 404
Skin tests in diagnosis of allergy conditions, 218
SKOLNIK, E. A.: Perlèche in adults, 50
SLOSSE, A.: Blood changes during pregnancy and parturition, 462
Small-pox, mild, 2—Relation of to typical small-pox, 214
SMITH, C. H. K.: The Kahn and Wassermann tests, 506
SMITH, G. L. M.: The Aschheim-Zondek test for pregnancy, 639
SMITH, W. S.: Post-partum haemorrhage, 284
SNAPPER, I.: Parathyroid tumour and generalized fibro-cystic osteitis, 495
SNELLING, C. E.: Sugar tolerance in infants, 612
SNIJDERS: Bacteriology of yellow fever, 292
Soap, influence of on antiseptics, 487
Soaps, germicidal properties in, 212
Sodium amytal: In neuro-psychiatric conditions, 106—In surgical cases, 154
Sodium iodide: In nasal infections, 350—In herpes zoster, 453
Sodium salicylate in massive doses in acute rheumatism, 353
SORDELLI, H.: Multiplicity of antigens in *B. anthracis*, 138
SORESI, A. L.: Radical cure of hallux valgus, 473—The latero-posterior incision for appendicectomy, 549
SOSA, H.: Cultivation of Ducrey's bacillus from soft chancres, 336
SOULIÉ: Pernicious anaemia resistant to liver treatment, 412
SOUPAULT, R.: Rectal injections of hypertonic saline solution, 351
SOUQUES, A.: Menstruation and epilepsy, 311
Soya bean as a milk substitute, 477
Spasmophilia, prognosis in, 490
Spastic hemiplegia. *See* Hemiplegia
Spina bifida treated by operation, 596
Spinal anaesthesia. *See* Anaesthesia
Spinal cord tumours. *See* Tumours
SPITZ, J.: Tryparsamide in neurosyphilis, 378
Spleen, extract of in malarial anaemia, 199
Spleen and left kidney, rupture of, 52
Splenic anaemia. *See* Anaemia
Splenomegaly, vaccinal, in infants, 6
SPRAGUE, H. B.: Salyrgan as a diuretic, 326
Spondylitis deformans, 518
Sprue, treatment of, 170
Sputum: Asbestosis bodies in the, 161—Quantitative estimation of living and dead tubercle bacilli in, 614
Squill, glucosides of, in acute scarlatinal nephritis, 499
STACY, L. J.: Uterine prolapse, 22
Staphylococcal septicaemia, 374, 421
STAVROPOULOS, J.: Lymphogranulomatosis in children, 164
STEIN, A.: Adeno-acanthoma of the uterus, 210
Stenosis, mitral, an auscultatory sign of defective conduction in, 622
Sterility: Causative factors in, 208—Intrauterine lipiodol injections in, 234—Salpingostomy for, 384
STEWART, S. G.: Cardiac disease and urinary retention, 435
Stieda's lesion, 192
STIEGLITZ, E. J.: Bismuth subnitrate in arterial hypertension, 201—Nephritis in pregnancy, 233
STIENON, L.: Bilateral facial paraspasm, 455
Still's disease, 202
STIRPE, G.: Cholesterin titre of blood serum, 44
STOKES, J. H.: Bismuth arsphenamine in early syphilis, 601
STOLZOVÁ-SUTORISOVÁ, M.: Anaerobic blood culture by the Boëz method, 118
Stomach dilatation, acute, 517
Stomach, emptying of, 101
Stomach of hogs in treatment of pernicious anaemia, 424
Stomach, total resection of, 245
Stomach, torsion and volvulus of the, 547
Stomach, volvulus of, 223, 547
Stomach. *See also* Gastric
Stone in the solitary kidney and ureter, treatment of, 169. *See also* Calculus
STOUTE, D. G.: Treatment of leprosy, 277
Stovarsol and malaria treatment of general paralysis, 451
STRACHAN, A. S.: Asbestosis bodies in the sputum, 161
STRANDELL, B.: Diagnosis of aneurysm of the heart, 93
STRAUSS, H.: Gall-bladder disease and carbohydrate metabolism, 615
STRAUSS, M. B: Chlorotic anaemia of pregnancy, 179
Streptococcal myositis, 580
Streptococci, apparent specificity among, 616
Streptococci in infectious (atrophic) arthritis and rheumatic fever, 89
Streptococcus of scarlet fever, non-specificity of, 290
Striated muscle. *See* Muscle
Stricture of urethra, treatment of, 244
STROE, A.: The glucosides of squill in acute scarlatinal nephritis, 499—Antigangrene serum in scarlet fever, 571
STRUTHERS, E. B.: Organic antimony in kala-azar, 328
Strychnine in alcoholic delirium, 375
STUB-CHRISTENSEN: Sanocrysin in pulmonary tuberculosis, 572
SUÁREZ, G.: Encephalitis in undulant fever, 546
Sugar, blood, content in later life, 365
Sugar in therapeutics, 478
Sugar tolerance in infants, 612
Sulphur in tabetic optic atrophy, 634
SUNDAL, A.: Acute haemorrhagic nephritis in childhood, 330
SUNDT, H.: The diagnosis and frequency of tuberculosis of the knee, 145
SUTCLIFF, W. D.: Lobar pneumonia treated unsuccessfully with convalescent serum, 34
SUTTON, Lucy P.: Digitalis therapy in children, 631
SUTTON, M. G.: Endometrial haemorrhage, 405
Sweden, scarlet fever in, 468
SWEITZER, S. E.: Acriflavine in psoriasis vulgaris, 62
SYK, I.: Tonsillectomy, 231
Sympathetic ophthalmia. *See* Ophthalmia
Sympathetic, pelvic, resection of, 641
Sympathectomy, pelvic, 65—And renal sympatheticotonus, 347
Sympatheticotonus, renal, and sympathectomy, 347
Symphysis pubis, traumatic separation of the, 396
Syndrome, choleriform, in infantile diphtheria, 65
Syphilis, allergic, early and late, intradermal reactions in, 88
Syphilis, cardio-vascular, treatment of by neo-arsphenamine, 35
Syphilis of the cervix, 310
Syphilis, congenital: Curability of, 96—Diagnosis of, 340
Syphilis, diagnostic tests for, 25
Syphilis, early, bismuth arsphenamine in, 601
Syphilis, gastric, simulating carcinoma, 440
Syphilis in morbus cordis, 143
Syphilis, specific treatment of, late effects of, 47
Syphilis, treatment of, 324, 526
Syphilis, treponeme therapy in, 550
Syphilis, urethral, 471
Syphilis without chancre, 512
Syphilitic arthritis, 545
SZELLÖ, F.: Radiological diagnosis of ectopic gestation, 288
SZUMLANSKI: Epilepsy due to compression of the frontal lobe, 3

T.

Tabes complicating pregnancy, 235
Tabetic optic atrophy, sulphur in, 634
TAKADA, M.: The preparation of tetanus anatoxin, 539
Tannic acid in treatment of burns, 51
TARDIEU, A.: Treatment of tuberculous haemoptysis, 632
TAVERNIER: Tenodesis in paralysis of the high adductors, 570
TEBBUTT, A. H.: Gastric syphilis simulating carcinoma, 440—Undulant fever in New South Wales, 619
Teeth extraction followed by bulbar paralysis, 318
TEMESVÁRY, N.: Gonorrhoea of the rectum, 258
Temporo-maxillary joint, ankylosis of the, 592
TEMPSKY, A. v.: Joint disease from frost-bite, 300
Tendon sheaths, arborescent lipoma of, 475
Tenodesis in paralysis of the high adductors, 570
TERAO, S.: The preparation of tetanus anatoxin, 539
TER BRAAK, J. W. G.: Epidemic polyneuritis, 624
Testis, undescended, 629
Tetanus anatoxin, the preparation of, 539
Tetanus spores, the germination of, 45
Tetany complicating enteric fever, 222
Tetany, spontaneous, in adults, 29
Tetra-ethyl lead, absorption of, 538
THAMANN, F.: Absorption of tetra-ethyl lead, 538
THIVOLLE, L.: Pathogenic factors in essential pernicious anaemia, 315
THOMAS, B. A.: Tuberculosis of the urinary tract, 100
THOMSON, J. G.: Latent and occult tuberculous infection of bronchial glands, 411
Thoracoplasty, extrapleural, results of, 521
Thrombosis of axillary vein, 148
Thrombosis, causes of, 225
THRONE, B.: Antimony in therapeutics, 104
THURBER, D. S.: Acriflavine in undulant fever, 59
Thymus in exophthalmic goitre, 272
Thyroid crisis, fatal, following injection of a varicose vein, 594
Thyroidectomy immediately before parturition, 323
Thyroxine and *x* rays in the treatment of uraemia, 249
TIJÖTTA, T.: Tularaemia in Norway, 268
TISDALL, F. F.: A cereal mixture for children, 16
TISDALL, O. R.: Nirvanol in chorea, 172
TOCANTINS, L. M.: Trauma of the brachial plexus and its roots, 456
Tongue, chancre of the, 49
Tongue, oedema of, with sublingual mumps, 267
Tongue, tuberculosis of the, 593
Tonsillar predisposition to infectious diseases, 638
Tonsillectomy, 231—In acute cervical adenitis, 951
Tonsils and disease, 625
Tonsils, infected, diathermy treatment of, 109
TOREK, F.: Adeno-acanthoma of the uterus, 210
TOULOUSE, E.: The blood in delirium tremens, 509
Toxaemias of pregnancy. *See* Pregnancy
TOYODA, M.: The bacteriophage in the diagnosis of dysentery, 508

TOYODA, T.: Non-specificity of the scarlet fever streptococcus, 290
Trachea, cancer of. *See* Cancer
Trauma and appendicitis, 126
Trauma of the brachial plexus and its roots, 456
TRÉNEL: Acute delirium in mental cases, 18
Treponeme therapy in syphilis, 550
TREVES, N.: Cancer developing in burn scars, 124
Trichinosis: Ocular manifestations of, 283—An outbreak in Pennsylvania, 413—Deafness in, 441
Trichlorethylene in trigeminal neuralgia, 597
Trigeminal neuralgia, trichlorethylene in, 597
TRIMBLE, W. H.: The general therapeutic value of ergotamine, 573
TROELL, A.: Surgical treatment of Graves's disease, 394
TROISIER, J.: Idiopathic pyrexias, 73
TROMBETTI, M.: Still's disease, 202
Trypaflavine causing nephritis, 182
Trypaflavine in typhoid fever, 553
Tryparsamide in neurosyphilis, 378
Tubal inflation and salpingography, 85
Tubercle bacilli, bovine, as a cause of phthisis, 486
Tubercle bacilli in sputum, quantitative estimation of, 614
Tuberculin reaction in the first three years of life, 91
Tuberculin reaction, the intradermal, 344
Tuberculosis and erythema nodosum, 341
Tuberculosis of the knee, diagnosis and frequency of, 145
Tuberculosis, lingual, 593
Tuberculosis and marriage, 28
Tuberculosis, pulmonary, basal metabolism in, 617
Tuberculosis, pulmonary, benign acute, 543
Tuberculosis, pulmonary, the blood platelets in, 507
Tuberculosis, pulmonary, diagnosis of, in childhood, 84, 529
Tuberculosis, pulmonary, diet in, 150
Tuberculosis, pulmonary, and erythema nodosum, 141
Tuberculosis, pulmonary, nascent iodine in, 450
Tuberculosis, pulmonary, sanocrysin in, 572
Tuberculosis, pulmonary, senile, 1
Tuberculosis, renal, 474
Tuberculosis and silicosis, 139
Tuberculosis, source of infection in, 316
Tuberculosis, tubercle bacilli (bovine) as a cause of, 486
Tuberculosis of the urinary tract, 100
Tuberculous haemoptysis, treatment of, 632
Tuberculous infection of bronchial glands, latent and occult, 411
Tuberculous laryngitis and pregnancy, 485
Tubes, Fallopian. *See* Fallopian
Tularaemia in Norway, 268
Tumour, parathyroid, and generalized fibrocystic osteitis, 495
Tumours, carcinoid, of the small intestine, 595
Tumours involving the cauda equina, 174
Tumours of the heart, primary, 125
Tumours of the small intestine, diagnosis of, 426
Tumours, intrathoracic, 190
Tumours, malignant, treated by radio-active bismuth, 193
Tumours, ovarian, pre-adolescent, 533
Tumours, ovarian, accelerated growth of after radiotherapy, 559
Tumours, pituitary, treatment of, 309
Tumours, renal, mixed, in infancy and childhood, 146
Tumours involving the spinal cord, diagnosis of, 93
Tumours, vesical, 445
Tumours. *See also* Cancer
TUOHY, E. L.: Calcareous aortic vulvular disease, 492
TURANO, L.: Radiological diagnosis of scirrhous gastric cancer, 131
TURENNE: Surgical treatment of placenta praevia, 113
Typhoid fever. *See* Fever, enteric
Typhoid osteo-arthritis. *See* Osteo-arthritis
Typhoid phlebitis. *See* Phlebitis
Typhus fever. *See* Fever

U.

UHLENHUTH, P.: Increase in virulence of the B.C.G. strain, 117
Ulcer, duodenal, 569—Endocrine treatment of, 279
Ulcer, gastric, 569—Endocrine treatment of, 279—Etiology of, 409
Ulcer, peptic: Treatment of, 123, 129—Treated with mucin, 635
Ulcerative colitis. *See* Colitis
Ulcers, gastric, treated by pepsin, 197
Ulcers, insulin treatment of, locally, 13
Ulcers, varicose, local treatment of, 227
ULMAR, D.: Benign acute pulmonary tuberculosis, 543
Ulnar neuritis, traumatic, 626
Umbilicus, diphtherial infection of the, 48
UNDERHILL, F. P.: Anhydraemia in extensive superficial burns, 10
Undulant fever. *See* Fever
UNSWORTH, H. R.: Malaria therapy in dementia paralytica, 36
Uraemia following blood transfusion, 470
Uraemia, experimental, 140
Uraemia without kidney disease 240
Uraemia treated by *x* rays and thyroxine, 249
Uraemic meningitis, 123
URBACH, E.: Clinical chemistry of the skin, 363
URBAIN, A.: The relationship of herpes zoster and varicella, 180
Ureter changes during pregnancy, 157
Ureter, extravasation from the, 321
Ureter and the solitary kidney, treatment of stone in the, 169
Ureteral pyelography, 554
Ureters and menstruation, 557
Urethral caruncle, treatment of, 247
Urethral stricture, treatment of, 244
Urethral syphilis, 471
Urinary diseases, radiology in, 307
Urinary incontinence, post-operative, 32
Urinary tract, tuberculosis of the, 100
Urine retention: In typhoid fever, 4—And cardiac disease, 435
Urography. *See* Pyelography
Uroselectan in the diagnosis of renal disease, 307
Urticaria: Etiology of, 645—In early infancy, 82
Uterine haemorrhage, etiology of, 558
Uterine hypertony in successive labours, 608
Utero-placental apoplexy and histamine, 642
Uterus, adeno-acanthoma of the, 210
Uterus and adnexa, vaginal extirpation of, 332
Uterus, cancer of. *See* Cancer
Uterus, prolapse of, 22
Uterus, rupture of, following Caesarean section, 42
Uterus, rupture of, during labour, 289

V.

Vaccinal encephalitis, 513
Vaccine therapy: In enteric fever, 60—In typhoid osteo-arthritis, 81—In rheumatic fever, 452
Vaccinia, generalized, and post-vaccinal encephalitis, 342
Vaccinia, immunization against by virus-serum mixtures, 259
Vaccinia virus for the production of encephalitis, 293
Vaccinotherapy in acute articular rheumatism, 14
Vagina, cancer of, 606, 607
Vaginal extirpation of uterus and adnexa, 332
VALDONI, P.: Arborescent lipoma of the tendon sheaths, 475
Valvular disease, calcareous aortic, 491. *See also* Heart
Varicella with blood picture simulating leukaemia, 144
Varicella and herpes zoster, 566—The relationship of, 180
Varicose ulcers. *See* Ulcers
Varicose veins. *See* Veins
Vascular changes, local, in splenic anaemia, 119
Vascular lesions of the hind-brain, 19
Vasomotor rhinitis. *See* Rhinitis
VECKI, V. G.: Treatment of syphilis, 324
Vein, axillary, thrombosis of the, 143
Veins, varicose: Injection treatment of, 191, 442, 443—Fatal thyroid crisis following, 594
VELOSO, S. P.: The basal metabolism in pulmonary tuberculosis, 617
VERROTTI, G.: Treponeme therapy in syphilis, 550
Verruca senilis and keratoma senile, 61
Vertebra, fifth lumbar, examination of the, 425
Vesical tumours. *See* Tumours
VIDAL, F. J.: Chondromas of the hand, 447
VIETS, H. R.: Vaccinal encephalitis, 513
VILENSKY, J.: Chancre of the tongue, 49
VILLANUEVA, C. G.: The frequency of adenoids in adults, 275
Virus-serum mixtures for immunization against vaccinia, 259
VISHER, J. W.: Treatment of urethral stricture, 244
Vision, effects of lead poisoning on, 165
Vitamin D: Relation of to irradiated ergosterol, 313—Mode of action of, 581
VOGT, E. C.: Encephalography in fixed lesions of the brain, 132
VOIGNIER, P.: Typhoid phlebitis and pulmonary infarction, 33
Volvulus of the stomach, 223, 547
Vomiting, cyclic, 331
Vomiting of pregnancy, treatment of by bromides, 536
VORON, J.: Puerperal infection and influenza, 333
VOYADZOPOULOS, G.: Accelerated growth of ovarian tumours after radiotherapy, 559
Vulva, blue staining of as a diagnosis of pregnancy, 382
Vulvo-vaginitis, monolial, 503

W.

WAGNER, C. P.: Chronic bromide poisoning, 185
WAHL, R.: Treatment of diphtheria carriers, 399
WALKER, J. C.: Apparent specificity among streptococci, 616
WAN, V. E.: Regional anaesthesia, 480
WARD, G. G.: Radium treatment of cancer of the cervix, 459
WARREN, S.: Vaccinal encephalitis, 513
WARTER, J.: The influence of intense effort upon the leucocyte count, 236
WARTHIN, A. S.: Syphilis in morbus cordis, 143
Wassermann and Kahn tests compared, 506
Wassermann test for syphilis, 25
Wasting following cholelithiasis, insulin treatment of, 196
Water and salts, excretion of from the kidney, 408
WATERMAN, G. W.: Radium treatment of cancer of the cervix, 287
WATKINS, A. G.: Immunology of scarlet fever, 159
WATKINS, R. E.: Occlusions of the lumen of the Fallopian tube, 209
WAUGH, T. R.: Hypochromic anaemia with achlorhydria, 438
WAXELBAUM, E. A.: Streptococci in infectious (atrophic) arthritis and rheumatic fever, 89
WEDEKIND, T.: The haemostatic action of Congo red, 80
WEICHSEL, M.: Post-vaccinal encephalitis and generalized vaccinia, 342
WEIGMANN, F.: Undulant fever investigations in Germany, 314
Weil's disease in Holland, 5
WEINBERG, M.: Haemorrhagic lesions caused by *Clostridium welchii*, 215
WEINSTEIN, M.: Gastric and duodenal ulcer, 569
WEISS, P.: Uraemia following blood transfusion, 470
WEISS, S.: Rational treatment of arterial hypertension, 79
WERNER, P.: Vaginal extirpation of uterus and adnexa, 332
Whitlow, milkers', 55
WIENERT, B.: The haemostatic action of Congo red, 80
WILDISH, G. H.: Treatment of leprosy, 277
WILKINSON, J. F.: Pernicious anaemia, 221
WILLENS, C.: Treatment of purulent arthritis of the knee, 419
WILLIAMS, J. T.: Pregnancy complicated by tabes, 235
WILLOUGHBY, H.: Treatment of malaria, 598
WILSON, A. S.: Full-term ectopic pregnancy, 232
WILTRUP, G.: Myopathia infraspinata, 388
WIMMER, S. D.: Sequels of sinusitis in children, 637
WINANS, H. M.: Lymphocytosis associated with ovarian new growth, 383
WINTROBE, M. M.: The erythrocyte in pernicious anaemia, 335
WISER: Intradermal reactions in early and late allergic syphilis, 88
WITHERSPOON, J. T.: A confirmatory physical sign in ascites, 587
WODAK, E.: Involvement of the acoustic nerve in epidemic encephalitis, 380
WOLFE, R.: Injection treatment of inguinal hernia, 472
WOLFERTH, C. C.: Angina pectoris, 511
WOLFF, G. v.: Pessaries and cancer of the vagina, 504
WOLTMAN, H. W.: Diagnosis of tumours involving the spinal cord, 99
WONG, A. I. H.: Labour in elderly primipara, 407
WOOD, F. C.: Angina pectoris, 511
WOODRUFF, I. O.: Digitalis in pneumonia, 304—Digitalis therapy in children, 631
WORMS, R.: Vaccinal splenomegaly in infants, 6
WRIGHT, H. P.: Artificial feeding in infants, 83
WULSTEN, J.: Thrombosis of the axillary vein, 148
WYCKOFF, J.: Digitalis in pneumonia, 304—Digitalis therapy in children, 631
WYMER, I.: Fatal colitis caused by avertin, 602

X.

Xanthoma multiplex with hypothyroidism, 63
X-ray treatment: In Graves's disease, results of, 308—Of primary malignant lymphadenoma, 575
X rays and thyroxine in the treatment of uraemia, 249

Y.

Yagéine or harmine, 198
Yeast factors in superficial dermatitis, 251
YOUMANS, J. B.: The general therapeutic value of ergotamine, 573
YOUNG, A.: Open operation in fractures, 7

Z.

ZAPPERT, J.: Sporadic encephalitis, 163
ZEBROWSKI, E.: Colonic stasis of hepatic causation, 269
ZIEGLER, Ll. H.: Paralysis of the cranial nerves, 457
ZIELLESSEN, F. O.: Calcareous aortic valvular disease, 491, 492
ZIMMERN, A.: Radiography of discrete pulmonary lesions, 427
ZINSSER, H.: Immunization against typhus fever, 540
Zondek-Aschheim reaction, hydatidiform mole, and chorion-epithelioma, 534

Printed and published by the British Medical Association, at their Office, Tavistock Square, in the Parish of St. Pancras, in the County of London.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

1 Senile Pulmonary Tuberculosis

U. MASUCCI (*Il Morgagni*, November 2nd, 1930, p. 2079) states that in spite of the studies of Charcot, Peter, Bertolotti, Hirtz, Etienne, Potain, and others, it is still generally supposed that tuberculosis is a disease almost entirely confined to youth. In reality, however, pulmonary tuberculosis not unfrequently develops in an insidious and protracted manner even in advanced life, as illustrated by a case seen by Masucci in a man aged 79, by Sabatini in one of 85, and by Bozzi in one of 108. According to Goglia's statistics of necropsies, senile tuberculosis escapes recognition during life in 68 per cent. As regards the general symptoms, the characteristic tachycardia and arterial hypotension are absent owing to the existence of arterio-sclerosis, which gives rise to hypertension and bradycardia. A rise of temperature at night, one of the most important symptoms of early pulmonary tuberculosis in young patients, is completely absent in a large number of cases, and slight and inconstant in others. Night sweats in old age are even rarer than fever. Physical examination does not as a rule show any definite evidence of disease, but Masucci has found in several of his cases of senile tuberculosis the following symptoms and signs which are constant in younger persons: the presence of micropolyadenopathy—small round painless glands mainly grouped at the site of the lesion; Boeri's sign—tenderness on pressure over the trapezius on the side corresponding to the lesion; dyspnoea; and recurrent slight haemoptysis. The diagnosis, however, can be established in most cases by the search for tubercle bacilli in the sputum, and a radiological examination of the chest.

2 Mild Small-pox

L. DE JONGH (*Klin. Woch.*, October 25th, 1930, p. 2021) states that during an epidemic of small-pox at Rotterdam and The Hague in 1929 he saw 32 cases of very mild small-pox, including 12 cases of non-eruptive variola in nurses. In non-epidemic times such cases are liable to be mistaken for influenza. Most of the patients had been repeatedly vaccinated, the last occasion being usually two months before they had to attend small-pox cases. The incubation period was shorter than usual, being at most 8 to 10 days, and, unlike the incubation period in ordinary small-pox, was not free from symptoms such as pain in the back, lassitude, insomnia, and sore throat. In view of the fact that these non-eruptive cases of small-pox occurred with one exception in recently vaccinated persons, it may be concluded that the immunity conferred by vaccination takes some months to be sufficiently strong to prevent the disease. There is no doubt that these non-eruptive cases are capable of spreading infection, which is specially liable to be conveyed by coughing. The prognosis of non-eruptive small-pox is usually favourable, but the author records one case in which myelitis developed in convalescence, and proved fatal in two months.

3 Epilepsy due to Compression of the Frontal Lobe

In most cases of essential epilepsy the necropsy reveals no macroscopical, and sometimes even no microscopical, cranio-encephalic lesions. BALTHAZARD and SZUMLANSKI (*Paris Méd.*, November 15th, 1930, p.451) report a case of this disease, non-traumatic in origin, and with no clinical lesion, in which the post-mortem examination revealed the principal cause of the convulsive crises. A man, aged 37, who was addicted to alcohol and suffered from mental debility, had suffered from attacks of vertigo and dizziness since the age of 17. He had been interned in an asylum six times during the previous seven years for chronic alcoholism and convulsive and psychic epilepsy. During each of these terms he had had no convulsions and only occasional attacks of vertigo. On each discharge, however, the crises recurred, due to alcoholic excesses and the cessation of treatment, which had included the administration of gardenal. He was found dead one morning, having probably fallen down during an epileptic seizure. There was a large wound on the forehead, which had bled copiously. Death was attributed to haemorrhage, with pulmonary oedema and asphyxia as contributory causes, but at the necropsy an exostosis, the size of a large almond, was found on the internal surface of the frontal bone; this had caused compression, and was sufficient to account for the epileptiform attacks. No evidence of fracture of the skull, meningeal haemorrhage, or meningitis was found. Alcoholism also played a part in increasing the frequency of the epileptic crises and the severity of the mental symptoms. The osseous tumour was possibly of syphilitic origin, though the Wassermann reaction of the blood was negative.

4 Retention of Urine in Typhoid Fever

L. F. DEFAIX (*Thèse de Paris*, 1930, No. 110), who records five illustrative cases in patients aged from 14 to 35, states that retention of urine is a relatively rare occurrence in typhoid fever, although it is mentioned in all the textbooks. It seems to be most frequent in the first week of the disease, but it may occur at any stage and in any form. Previous disease of the urethra and bladder, such as gonorrhoea, probably plays a part in its production, as does physical or moral strain. Retention of urine does not seem to indicate a particularly severe attack of typhoid fever, except when it appears at an early stage, and therefore does not affect the prognosis. As soon as the symptoms develop an attempt to prevent its continuance should at once be made by the application of hot compresses to the hypogastrium, the administration of opium by mouth or enema, or injections of pilocarpine hydrate (1 cg.) or pituitrin (1 to 2 c.cm.). If these measures fail a catheter should be passed twice a day under rigorously aseptic conditions.

5 The Incidence of Weil's Disease in Holland

J. P. BIJL and G. KORTHOF (*Arch. f. Hyg.*, October, 1930, p. 29), working in the Central Laboratory at Utrecht, have encountered sixty-two cases of Weil's disease during the years 1924 to 1930. The diagnosis was made either on the presence of leptospirae in the blood or the urine of the patient, or on the presence of agglutinins or lysins in the blood. The lowest titre of antibodies that has been considered positive was 1 in 1,000. Of the sixty-two cases, no fewer than forty-one occurred in the months of August to October. The great majority of the cases were reported from the low-lying watery provinces of Holland and Utrecht; sixteen of the patients gave a history of a fall into water or of swimming. Not all waters seem equally dangerous. The water is probably infected from the urine of rats, 20 per cent. of which were found to be carrying *Leptospira icterohaemorrhagiae*. Four epidemics of jaundice were investigated in which typical symptoms of Weil's disease were not forthcoming; in none of them was there any evidence of a leptospiral infection.

6 Vaccinal Splenomegaly in Infants

P. LEREBOULLET and R. WORMS (*Paris Méd.*, November 1st, 1930, p. 400), who record an illustrative case in a child, aged 11 days, draw attention to the occurrence of transient splenomegaly, sometimes of considerable degree, in infants during the first weeks of life, and associated with a vaccinal eruption or cutaneous suppuration which could not be attributed to congenital syphilis. In the presence of a large spleen, therefore, without any other symptoms, in an infant a few weeks old, there is no

justification for suspecting congenital syphilis unless the child has not recently been vaccinated or has not recently had some infection of the skin. It is important that repeated examinations should be made to determine whether the enlargement of the spleen is permanent or only transient, as a chronic enlargement continues to remain a valuable evidence of congenital syphilis. It is noteworthy that, though no previous description of vaccinal splenomegaly in the human subject has been given, enlargement of the spleen was recently recorded by Douglas, Wilson-Smith, and Price in twenty-four out of thirty-six cases of experimental generalized vaccinia in the rabbit.

Surgery

7 Open Operation in Fractures

A. YOUNG (*Annals of Surgery*, November, 1930, p. 838) records the result of his experience of twenty years in the treatment of fractures by open operation and direct fixation. The period particularly under review is that between 1917 and 1927, in which time 1,325 cases were treated, an open operation being employed in 539 cases. Immobilization of the fragments was secured by direct fixation in 229, or 17 per cent., of the cases so treated. In the preceding nine years only 6 per cent. of cases had been treated by direct fixation, thus proving the increasing confidence felt in this method of treatment. Of the 229 cases treated by open operation and direct fixation, 43 were wired, 61 were pinned or nailed, in 108 plating was used, and the remaining 17 were dealt with by combinations of metallic fixation or by catgut suture. The choice of method must depend on the individual case, and must aim at securing the most adequate restoration of function with the minimum risk, and the maximal accuracy in the adjustment of the fragments. The careful disinfection of the skin over a wide area, including and passing far beyond the site of fracture, is stressed; out of the whole series of cases reported, only two suffered from any serious infection. Open operation is advocated, not only for unusual fractures, or in cases of fractures with unusual displacement, but as a routine procedure for a large proportion of fractures of the long bones. In the case of fractures or fracture-separations in the elbow region where there is appreciable displacement, an open operation and direct fixation should be the treatment of choice. It has been found that there was no diminution in the activity and efficiency of the processes of repair, and union has in most cases been accelerated by this method of treatment. Only one case has been observed in which union was delayed, and one case in which it failed. The result of twenty years' experience has been to convince the author that in the treatment of many fractures of long bones an open operative procedure is safe in execution; it affords the most hopeful outlook for the early recovery of function, and the most perfect anatomical restoration.

8 Appendicitis in the Middle-aged

F. S. JOHNS (*Virginia Med. Monthly*, November, 1930, p. 509) states that though appendicitis in the middle-aged is less frequent, it is much more severe than in younger persons. The diagnosis is generally made late, because the disease is of gradual onset and there is a delay in calling in the family physician. According to Beckman, Smith, and Everingham the case mortality between 10 and 50 is only 4.7 per cent., but after 50 it is 23 per cent. At the operation the appendix is often found to be gangrenous throughout. A large proportion of the patients die between the fifth and eighth days after operation with cardio-vascular or renal complications, but the extension of gangrene and phlebitis are responsible for the high death rate. Owing to the danger of cardio-vascular changes, local anaesthesia with ethylene is advisable. When general anaesthesia is not used there is less danger of respiratory complications, and nausea and vomiting are reduced to a minimum.

9 Ganglionectomy

P. G. FLOTHOW (*Amer. Journ. Surg.*, October, 1930, p. 8) emphasizes the increasing importance of sympathetic nerve surgery, and reports a series of fourteen cases treated in this way; the patients were suffering from various diseases, such as Raynaud's disease, Buerger's disease, megacolon, and certain types of chronic arthritis. Three cases of Buerger's disease with associated vasospasm are reported; two were in the upper extremities and one in the lower, while one patient had an associated polycythaemia. Of these three cases, two were very successful, and the third would probably have given a good result had not high intestinal obstruction caused the death of the patient. Chronic polyarthritis deformans responded to sympathetic ganglionectomy in four cases, all of which had been treated unsuccessfully by other means for a minimum of eight years. In each case operation was followed by immediate relief of pain and marked improvement in the arthritis. Amputation pains and brachial neuritis have been cured or greatly relieved when the pain was of sympathetic, not psychic, origin, and three cases are quoted. One case of trifacial neuralgia and one of atypical facial pains have been treated, in the former case by a left stellate ganglionectomy, and in the latter by the removal of the right inferior cervical and first thoracic ganglia; the results were most satisfactory a year after the operation. One case of megacolon and one of spastic colon were entirely relieved by lumbar ganglionectomy. In seven of the fourteen cases a dorsal ganglionectomy was done, using the removal of the second rib and transverse process as the approach; in the other seven a transabdominal approach was used for the removal of the lumbar ganglia. It is suggested that future surgical advances may take place in the realm of the sympathetic nervous system.

10 Anhydraemia in Extensive Superficial Burns

F. P. UNDERHILL (*Journ. Amer. Med. Assoc.*, September 20th, 1930, p. 852) draws attention to the increased concentration of the blood found in cases of extensive burns, and attributes to this the so-called "toxaemia," which is, in his opinion, a misnomer. As a result of this increased concentration, the large blood vessels are not properly filled, so that tissue asphyxiation results. Underhill regards the pulmonary oedema of war gas poisoning as analogous to the outpouring of fluid at the site of a burn of the skin, both phenomena being the body's response to intense local irritation, and both resulting in increased blood concentration. Animal experiments have shown that a burn involving one-sixth of the body surface results in the loss from the burnt area of fluid equivalent to 70 per cent. of the blood fluid in twenty-four hours. If the same physiological conditions apply to man, a burn involving one-sixth of the skin area of a man of average weight, whose total blood fluid would be approximately 5,000 c.cm., might result in the loss of 3,500 c.cm. of fluid in twenty-four hours, though it is possible that the loss may be made good, up to a certain point, by substitution of "reserve interstitial fluid"—an unknown factor. Personal experience has led the author to believe that the concentration of the blood up to 125 per cent. of the normal renders life precarious. The fluid lost from burnt surfaces has been found to be almost identical with blood plasma in composition. Experimental work with animals has shown that the absorption from the burnt area of drugs and dyes is extremely small for the first five days; it is thought that the outgoing of fluid is due to increased capillary permeability, whilst reabsorption is a very slow process. The chloride content of the blood has been found inversely proportional to its concentration—the result of the increased capillary permeability, which allows chlorides to pass out with the plasma; the concentration of the blood can conveniently be measured by haemoglobin estimation. Organic damage to the kidneys is not common, but functional derangements are often found; a specific "toxin" causing damage to the kidney need not be assumed, since increased blood concentration is enough to upset the renal function. During the first

twenty-four to thirty-six hours, when the increase of capillary permeability is greatest, normal saline administration should be continuous; in severe cases, 1,000 c.cm. should be injected immediately by the veins. Acidosis may be combated by sodium bicarbonate, given orally when the patient can swallow. During the twenty-four hours 2,000 to 3,000 c.cm. should be given subcutaneously and 200 to 250 c.cm. of tap water by the rectum every three hours. In all, 4 to 8 litres of water are needed daily; the theoretical danger of "water intoxication" need not be feared, since about 35 litres would be necessary for its production. The local treatment of burns is of secondary importance where shock and anhydraemia are severe, and may safely be postponed till the foregoing general measures have been instituted.

11 Primary Cancer of the Lung

E. RIST and J. ROLLAND (*Ann. de. Méd.*, October, 1930, p. 231), who record 23 cases in patients aged from 18 to 73, in all but two of whom the diagnosis was made during life, state that primary cancer of the lung is no longer a rare condition, as was once supposed. Either it is really more frequent than formerly, or else it is becoming easier to recognize. Of the authors' cases 16 occurred in men, and only 7 in women. In five instances coexistence of tuberculous lesions was found at the necropsy, and in three there was a history or clinical manifestations of syphilis. None of the patients had been particularly exposed to the inhalation of dust. The symptoms are those of pleural effusion or of chronic pneumonia. There is nothing special to note in the dyspnoea, cough, or pain, which vary in degrees in different cases. Metastases were found in the following sites: pleurae (6 cases), glands (6 cases), liver (5 cases), brain (2 cases), skin (2 cases), suprarenals (1 case), kidneys (2 cases), spleen (1 case), bone (2 cases), opposite lung (2 cases), peritoneum and mesentery (2 cases). In twelve instances, however, necropsies could not be performed. The diagnosis was made in all cases by radiological appearances, supported by bronchoscopy in 4 cases and by biopsy of an affected gland, metastatic nodule, or portion of the tumour in 8 cases. All the cases terminated fatally. Radiotherapy was used in 10 cases, with the following results: in two it caused considerable relief of the symptoms; in one the neoplasm broke up rapidly, but symptoms of toxaemia soon developed; and in the rest there was no effect.

Therapeutics

12 Treatment of Inflammatory Conditions with Benzyl Cinnamic Ether

LÉVY-SOLAL, J. JACOBSON, J. DALSACE, and M. PARIENTÉ (*Paris Méd.*, October 25th, 1930, p. 369), as a result of previous satisfactory reports on the efficacy of benzyl cinnamic ether on tuberculous and other lesions, tried this drug in ten cases of salpingitis and report their observations. Daily intramuscular injections of 1 c.cm. were given for twelve days into the buttock region; there followed a rest of ten to fifteen days, after which a new series of twelve injections was begun. The authors state that the lesion generally abates at the end of the second series, but when this does not happen another course is given after the lapse of a fortnight. There is no local, focal, or general reaction, but, if the general condition of the patient is poor, a start should be made with half the dose. They arrange their cases in three categories: (1) bed cases where the drug was used from the very beginning; (2) bed cases where it was tried after failure with the classic treatment; and (3) ambulatory patients continuing their usual occupations, in which cases the drug was employed alone. As the result of treatment they found that pain yielded towards the fourth or fifth injection, especially when it had been continuous. In one case of pain in crises the treatment ended in failure. The lesion itself underwent steady regression. The pelvic swelling decreased; it then appeared as only a fullness, and finally there was no longer discoverable any thickening of fibrous consistence. The authors add that the results are as yet too recent to justify the formulating of any opinion as to the ultimate condition, although some of the cases have remained cured for five months. They claim, however, that the results obtained so far deserve to be noted both on functional and on physical grounds.

13 Local Treatment of Ulcers with Insulin

D. ADLERSBERG and A. PERUTZ (*Deut. med. Woch.*, November 7th, 1930, p. 1905) describe a further series of cases of ulcer treated by the local application of insulin. There are theoretical reasons (based partly on Warburg's work on tissue metabolism) for expecting insulin to aid in the growth of granulation tissue and epithelium, and animal experiments carried out by the authors gave encouraging results. The cases consisted chiefly of indolent ulcers of the leg which had failed to respond to other forms of treatment. Some cases of ulcers due to burns, and ulceration of the cervix uteri, were also treated with success. Many of the patients were ambulatory. Once daily insulin is dropped on to the ulcer surface, which is then covered either with an indifferent ointment or with dry gauze. Stimulation of granulation tissue and epithelialization is usually rapid, though occasionally cases are resistant to treatment. Since some have suggested that it is the acidity of the insulin solution which causes the beneficial results, only neutral, or nearly neutral, solutions were used in this series. Weak acids did not promote healing in the same way. No lowering of the blood sugar was noted in any of the cases, so that the effect of the insulin appears to be purely local.

14 Vaccinotherapy in Acute Articular Rheumatism

M. LOEPER and R. DEGOS (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, October 20th, 1930, p. 1463) consider that no sufficient proof of the bacterial specificity of acute rheumatism has yet been produced. They have made use, for diagnosis and treatment, of vaccines prepared by the Pasteur Institute, or, following its methods, and contrary to American observers (who use filtrates), have found that many rheumatic subjects give positive intradermal reactions to certain vaccines, or, if multiple reactions ensue, show a much stronger reaction to one or two organisms. The most commonly used organisms for preparing the vaccines were streptococci, staphylococci, pneumococci, and gonococci. It was noted that 6 out of 10 cases treated were resistant to sodium salicylate by the mouth or intravenously. The authors obtained good curative results in a majority of the cases treated, and consider that vaccinotherapy is of definite value in arresting the more serious complications of the disease. Some cases showed slight febrile reactions, with exacerbation of joint signs; this was regarded as a favourable indication. When these reactions occurred there was no general leucocytosis, but a relative polynuclear increase, and a slight and precocious eosinophilia, regarded as a sign of acceleration of the curative process. In two cases only was the vaccine alone insufficient to cause regression of the disease; in both there was no marked intradermo-reaction to any of the organisms used. The most constantly good results were obtained with mixed strepto-staphylococcal vaccines; intradermo-reactions to these organisms were the most frequently positive. The authors do not claim that vaccine treatment should supersede the use of salicylates, but they suggest that it should always be tried in salicylate-resistant cases, and as an accessory treatment whenever intradermo-reactions are positive.

15 The Cortical Hormone in Addison's Disease

J. M. BERKMAN and J. LANSBURY (*Proc. Staff Meetings, Mayo Clinic*, October 15th, 1930, p. 292) each report a case of Addison's disease, in both of which beneficial results followed treatment with the cortical hormone of Swingle and Pfiffner. The diagnosis in the first case was made owing to marked progressive weakness, loss of weight, gastro-intestinal disturbance, hypotension, and pigmentation. A subcutaneous injection of 10 c.cm. of

the hormone was given, and a modified Muirhead regimen instituted. After two days' improvement a relapse threatened. Since no more hormone was available, physiological saline solution was injected intravenously, and the regimen was continued. The patient once more improved, but loss of weight persisted. With the advent of more hormone, this was again administered. Definite improvement ensued and has continued. The second patient suffered from dyspnoea, loss of weight, and dizziness, and extreme fatigue and palpitation on the slightest exertion; the marked pigmentation characteristic of Addison's disease was present. Treatment with the hormone was commenced, and 86 c.cm. was given in five days, all but 7 c.cm. being administered intravenously. Little change was noted for two days, but then improvement was shown, the patient's colour becoming much more normal; with the exception of headache, she was feeling well and strong at the time of the report. L. G. Rowntree, also of the Mayo Clinic, states that the results in these cases are typical of those obtained in a group of 7 similarly treated. The treatment is usually effective in five days; the appetite and weight increase, and definite euphoria is experienced. Changes in blood pressure and in the amount of pigmentation follow much more slowly than the relief of gastro-intestinal disturbances. However, these results must be regarded as being temporary, immediate, and due to substitution. Patients with Addison's disease suffer from shock in even very minor operations, and it is hoped that this treatment will be an effective pre-operative measure, as is iodine in hyperthyroidism. The results of these preliminary studies seem to indicate that this hormone is a specific for Addison's disease; if so, the therapeutic response to the hormone affords a new test for this disease.

16 A Cereal Mixture for Children

F. F. TISDALL, T. G. H. DRAKE, and A. BROWN (*Amer. Journ. Dis. Child.*, October, 1930, p. 791) introduce a new cereal of the following percentage composition: wheatmeal 53, oatmeal 18, corn meal 10, wheat germ 15, bone meal 2, dried brewers' yeast 1, and alfalfa 1. The ingredients are ground, mixed, and dried at a temperature of 70° C. for thirty minutes. The mixture will keep indefinitely; it is rich in calcium, iron, and copper. Vitamins A, B_1, B_2, D—from ultra-violet irradiation of the wheat germ in yeast—and E are present in appreciable quantity. The average infant and child consume from one to two ounces of the dry cereal per day. It has been used almost exclusively for the past three months in the Hospital for Sick Children at Toronto. It is no different from the ordinary refined, finely milled cereals as regards its laxative or constipating effect, or in palatability.

Neurology and Psychology

17 Amyotrophic Lateral Sclerosis in Epidemic Encephalitis

Since little reference has been made in the literature to the occurrence of amyotrophic lateral sclerosis in chronic epidemic encephalitis, and as the cause of the former disease is unknown, A. M. ORNSTEEN (*Journ. Nerv. and Ment. Dis.*, October, 1930, p. 369) reports a case in which this post-encephalitic syndrome was observed. The onset was sudden, with all the symptoms of acute epidemic encephalitis—upper respiratory discomfort, asthenia, diplopia, and diurnal somnolence. Within a month after this attack a subacute bulbar palsy developed, the first symptom being thickening of the speech (which was attributed to swelling of the tongue) and dysphagia. The later development of universal myoclonia, affecting all the muscles from the masseters and buccinators to the calves, and of spasticity, is interesting owing to the resulting resemblance to Charcot's amyotrophic lateral sclerosis, and supports the view that infection may be the etiological factor in the latter disorder, at any rate in some cases. The atrophy in the case reported was most marked about the shoulders, arms, and chest, while the spasticity and pyramidal tract signs predominated in the lower half of the body. Lesions of the anterior horns and pyramidal tracts are inferred in order to explain the amyotrophic lateral picture, and the pathological findings by Wimmer in two similar cases are cited in evidence. Lesions of the mesencephalon are considered to be the cause of the universal myoclonia rather than ganglion cell irritation in the motor nuclei of cranial nerves and anterior spinal horns. Ornsteen suggests that amyotrophic lateral sclerosis may be related to an old infection, and reviews the opinions of several authorities as regards the nature and causation of this disease.

18 Acute Delirium in Mental Cases

TRÉNEL (*Paris Méd.*, September 27th, 1930, p. 257) describes an acute febrile delirium of extreme gravity, and often fatal, which is met with in some mental cases, and is confined almost exclusively to women. Ladame has classified the symptoms into three groups: grave disturbance of the general nutritive exchanges with intense cachexia and death in one to two weeks; profound mental confusion and rambling delirium; and generalized intense motor agitation. In the hypertoxic fulminating form the onset may be very abrupt; the patient suddenly shows bewilderment, confusion, incoherence, and violent agitation. Insomnia is absolute and intractable. Urinary symptoms are rare, but either incontinence or retention of urine may be present; constipation is the rule. The heart beats violently, and the pulse is uncountable. The temperature rises rapidly, and the patient dies of adynamia or cardiac failure. Another type also occurs which is insidious, and is ushered in by short or prolonged prodromes. The patient becomes preoccupied, indifferent, and morose, and eats irregularly; after some days or weeks the acute symptoms already mentioned supervene. There are three forms of this type: maniacal, melancholic, and a mixed form with both orders of symptoms. The motor disturbance, which is of a choreiform nature, is a very marked symptom. The most constant and almost the most important symptom is sitophobia, with which is associated a continual expectoration without much salivation. The most frequent complication is parotiditis, usually unilateral and secondary to the buccal infection; this is an almost fatal sign. Obstinate constipation is usual, and a most striking symptom is rapid loss of energy with emaciation. Various causes have been suggested for the high fever. The author believes that it is of central origin, since lesions of the ganglions of the base (the site of the thermic centres) have been noted. The etiology and pathogeny of acute delirium are obscure. Many theories have been advanced, and Trénel suggests that it is of endogenous origin. The fact that the disease is practically limited to the female sex, and the frequent coincidence of metrorrhagia, seems to indicate a direct psycho-sexual correlation. Necropsies almost invariably reveal not only a congestion of the internal genital organs, but also recent haemorrhages, which are sometimes encysted and sometimes diffuse. The pathology is discussed at some length. Treatment is purely symptomatic. For the insomnia, hyoscine or scopolamine is advocated, and for the fever cold sponging. Cardiac tonics (camphorated oil in large doses and sparteine) are usually given. Any struggling with the patient must be avoided as much as possible, and forced feeding with a sound must be resorted to in all cases of persistent refusal to eat. Five illustrative cases are recorded.

19 Vascular Lesions of the Hind-brain

Vascular lesions of the lateral portion of the medulla are generally known as the syndrome of the occlusion of the posterior inferior cerebellar artery. H. MERRITT and M. FINLAND (*Brain*, October, 1930, p. 290) believe, contrary to the general supposition, that the syndrome is fairly common; they record six cases encountered at the Boston City Hospital during the past two years, and very similar to those previously reported. The lesion generally

occurs in arterio-sclerotic subjects, and the age of onset in all but one of the present cases was in the sixth or later decades. The onset is usually fairly sudden, but without loss of consciousness, and all the symptoms can be readily explained by the neurological lesion. Vertigo and dysphagia were present in all cases. Pain in the homolateral side of the face, subjective numbness on the contralateral side, and dysarthria were noted in five cases. Diplopia was detected in four patients, and cerebellar symptoms in three. Intractable hiccough was present in only two cases. The site of the lesion is usually the lateral portion of the medulla with its contained structures—namely, the nucleus ambiguus, spinal fillet, oculo-pupillary nucleus, and the descending tract and nucleus of the trigeminal nerve. More dorso-lateral structures, such as the nuclei of the eighth nerve and the restiform body, are injured by any spread of the lesion. Points in the anatomical physiology of the hind-brain, illustrated by these cases, are discussed. The structures in the median portion of the medulla—namely, the twelfth nerve nucleus, the medial lemniscus, and the pyramidal tract—are not involved, since they receive their blood supply through the anterior spinal artery. Foix, Hillemand, and Schalit have come to the conclusion that most so-called cases of thrombosis of the postero-inferior cerebellar artery are really due to a lesion of the artery of the lateral fissure. The diagnosis is usually simple: conditions to be differentiated are tumours of the medulla, syringobulbia, and osteomyelitis of the temporal bone. The authors state, again contrary to the general opinion, that the prognosis is very good; in time most of the symptoms and signs disappear or improve, with the exception of the sensory changes, which, as a rule, persist.

Obstetrics and Gynaecology

20 Operability in Carcinoma of the Cervix

R. KELLER (*La Gynécol.*, September, 1930, p. 546), discussing the difficulties met in assessing the operability of cervical carcinoma, points out that tumours originating in the vaginal cervix frequently extend along the portio vaginalis to the vaginal wall so superficially as to remain operable for a considerable period. Endocervical neoplasms, on the other hand, are apt to extend deeply along the lymphatic routes, so that at the moment when they become obvious at the external os their operability may already be doubtful. Invasion by the tumour of the paracervical and parametrial tissue and the utero-sacral ligaments is the deciding factor in operability. Infiltration of the broad ligament may be neoplastic or inflammatory, and before operation it is impossible to predict with certainty which variety may be met with, or the extent of the technical difficulties which either will induce. Cellular infiltration, which is a tissue reaction against an invasive neoplasm, may not greatly hinder wide hysterectomy, but that following old-standing inflammation, especially puerperal, may make operation impossible. In certain cases the decision as to the possibility of doing Wertheim's operation can only be made after trial dissection in the broad ligaments. Cystoscopy may show that a tumour is inoperable, but at operation in certain cases with normal cystoscopic report it may be found that inflammatory or neoplastic infiltration of the cervico-vesical or vagino-vesical tissue renders radical hysterectomy impossible. Vesical resections are inadvisable. There is much to be said for commencing the operation in the bladder region; the impossibility of separating the tissue in this region excludes a radical operation. At the beginning of the operation, moreover, the condition of the regional lymphatic glands should be investigated. If they are much enlarged, numerous, and densely adherent to the blood vessels they are neoplastic in character, and operability is unlikely. If in spite of slight enlargement the glands are oedematous, and easily movable on their axis, and if parametrial infiltration is absent or not sufficient to prevent tissue cleavage, a radical operation is not contraindicated. Subsequent examination shows in many cases that they are inflamed and not neoplastic.

21 Foetal Injury by Amniotic Bands

J. GRANZOW (*Zentralbl. f. Gynäk.*, October 25th, 1930, p. 2699) records a case in which the mother of two healthy children gave birth spontaneously during the seventh month to a stillborn child with deformities of both lower limbs. In the left leg a deep circular furrow, the result of pressure by an amniotic band, corresponded with the level of an acute-angled tibio-fibular fracture. The ends of the bones projected through a small circular breach in the skin; callus was absent, but the edges of the wound showed signs of healing. In the right the toes were absent, and had, it is concluded, been amputated at an early date by another amniotic band. The placenta and membranes appeared normal, and there was no history of trauma during pregnancy.

22 Uterine Prolapse

V. S. COUNSELLER and L. J. STACY (*Journ. Amer. Med. Assoc.*, October 4th, 1930, p. 983) report the results obtained by various members of the surgical staff of the Mayo Clinic in the case of 980 patients surgically treated for uterine prolapse and associated conditions from 1920 to 1928 inclusive. Answers to questionaries were received from 89 of them (83.5 per cent.), and satisfactory results were reported in 95.9 per cent. of the entire series. Five types of operation were employed. The modified Gilliam operation of internal shortening of the round ligaments, with vaginal plastic procedures, a combination of operations 1 and 2, is shown to be the operation of choice for patients of the child-bearing period. Satisfactory results were obtained in 88.5 per cent. of the cases in which the Gilliam technique was used. The Kocher abdominal fixation operation is reserved for that group of patients who are past the menopause, senile, and constitute poor surgical risks, and for those who have undergone hysterectomy previously, with prolapse of the cervical stump. Satisfactory results were obtained in 94.8 per cent. of the cases. If the uterus is of normal size and there is a mild degree of prolapse, with large cystocele, and the patient has passed the menopause, the Watkins-Wertheim interposition operation is successfully employed, satisfactory results having been obtained in 96.6 per cent. of the cases. When the prolapse is of marked degree and is associated with large cystoceles, and the women are past the menopause, the Mayo vaginal type of hysterectomy is the operation of choice. It was employed in 81 per cent. of the patients who had passed the menopause, with satisfactory results in 97 per cent.

23 Rapid Accouchement by Method of Delmas

P. DELMAS (*Bull. Soc. d'Obstét. et de Gynécol. de Paris.* October, 1930, p. 571) has seen no untoward results at his clinic during four years, and in nearly a hundred cases, following rapid delivery by his method of manual dilatation of the cervix after the intraspinal injection of 10 cg. of scurocaine. He stresses the importance of following the technique originally described and of excluding cases in which the cervix and lower uterine segment are not supple. Unfavourable results, he says, are due to neglect of these points. E. H. ROBIOLIS (ibid., p. 568) has been favourably impressed by the ease and harmlessness of Delmas's procedure in five cases of labour which had commenced spontaneously in eclamptic or pre-eclamptic subjects. He emphasizes the importance of giving an adequate dose of scurocaine, but prefers digital (Bonnaire) dilatation of the cervix to that by the clenched hand. E. BRÉMOND (ibid., p. 565) thinks that the low placental insertion in placenta praevia ensures pliability of the cervix and is particularly favourable for the Delmas technique; he records four cases of placenta praevia in which cervical dilatation, version, and extraction were easy. LAFFONT and SESINI (ibid., p. 541) report trial of Delmas's method of delivery under spinal anaesthesia in cases of transverse presentation with pyrexia and cervical

oedema, placenta praevia, and impacted transverse presentation, as a preliminary to hysterectomy. In the first class of case, which is among those excluded by Delmas as unsuitable for his treatment, dilatation was not secured. In the second class manœuvres were easy, but the patient died from shock and haemorrhage. In the third class a lethal rupture of the uterus may have been present before intervention. The conclusion is drawn that states of haemorrhagic shock and cases of impacted transverse presentation contraindicate spinal anaesthesia. A. FRUHINSHOLZ (ibid., p. 585) followed Delmas's technique in the case of a patient dying near term from tuberculous meningitis. Complete but sleeve-like dilatation of the cervix was obtained within four minutes, and extraction of a living child by version was rendered easy. A tear of the lower uterine segment, however, was noted.

Pathology

24 Miliary Aneurysms of Cerebral Arteries

Since there is much doubt concerning the exact nature of miliary aneurysms of the small arteries, especially of the cerebral vessels, W. D. FORBUS (*Bull. Johns Hopkins Hosp.*, November, 1930, p. 239) reports a study of these conditions in several cases. The so-called congenital aneurysms were principally investigated, and only those of the superficial cerebral arteries. These observations have led Forbus to believe that miliary aneurysms of these arteries, and probably of all other arteries of medium size, occur quite independently of any inflammatory process, arterio-sclerosis, or external trauma, and that these aneurysms as such are not congenital malformations. They are acquired lesions arising from a combination of local weakness in the vessel wall, resulting from a congenital defect in the media, and degeneration of the internal elastic membrane, due to overstretching of this membrane. This defect occurs at the point of bifurcation of the vessel. The muscular coat of any vessel develops from a group of mesenchymal cells quite separate and distinct from those which form the muscularis of its branches, and the muscular sheath of the parent vessel develops earlier than does that of its branches. A failure of the two separately developing coats to fuse properly offers the possible explanation of the later observed defect. That the malformation of the artery wall at the point of bifurcation underlies the later development of aneurysms appears to be indicated by certain facts which are enumerated.

25 Diagnostic Tests for Syphilis

R. DE BLASIO (*Ann. de Derm. et de Syph.*, October, 1930, p. 1014) describes Amato's test, which depends on a definite leucopenia (not less than 1,000 per c.mm.) found thirty minutes after the intravenous injection of 2 cg. of mercury biniodide; this reaction is fugitive, and the count must be made not more than thirty minutes after the injection. It depends on the occurrence of haemoclastic shock, and is similar to that obtained in tuberculous subjects after tuberculin administration; the same reaction has been applied in other conditions. In 1929 Gouin and others devised a new specific reaction for syphilis, depending on the recognition, two hours after the injection of antisyphilitic medicaments, of a leucocytosis. By the graphic study of a number of blood counts, Blasio claims to have established that Amato's leucopenia and Gouin's leucocytosis are two phases of the same phenomenon—haemoclastic shock. In 15 cases where both reactions were positive he has searched for other signs of this shock, such as a fall in the blood pressure, and found them present. Moreover, in 5 cases he has examined the Arneth index, and found a shift to the left, and from the findings of other workers he thinks that this phenomenon is probably constant. Among 100 cases of known or suspected syphilis Blasio found that the Wassermann test gave most positives, the Sachs-Georgi the second greatest number, the haemoclastic test the third, and the leucocytosis test the fewest. In cases with clinical evidence of visceral syphilis, the haemoclastic test gave a greater percentage of positives than any of the other reactions. Both haemoclastic and leucocytosis tests were tried in 50 non-syphilitic cases (20 healthy and 30 with other diseases), and it was found that the first gave 10 per cent. of positives, and the second 18 per cent. Blasio concludes that Amato's and Gouin's tests demonstrate different phases of the same phenomenon. The first is more specific than the second, and it is well worth trying when the Wassermann test is doubtful or negative, especially in suspected cases of visceral syphilis.

26 Pasteurellosis of Rabbits

J. R. MORCH and G. KROGH-LUND (*C. R. Soc. de Biologie*, November 4th, 1930, p. 319) record the occurrence of an epidemic among the rabbits and guinea-pigs in the Danish Serological Institute during the years 1925 to 1927. The pathological findings at necropsy were extremely variable; sometimes there was a simple haemorrhagic septicaemia without macroscopic changes; sometimes there were fibrino-purulent deposits on the pulmonary and costal pleura, or on the diaphragm and abdominal viscera; in some animals these deposits had become desiccated; in some, cold abscesses were found in the subcutaneous tissue of the abdomen; and in still others destructive inflammatory changes were observable in several joints. The causative organism was a bipolar-staining Gram-negative bacillus identified as belonging to the *Pasteurella* group. A number of strains of *Pasteurella* isolated from rabbits, guinea-pigs, cattle, fowls, sheep, hares, mice, and opossums were subjected to a comparative study. All of them were morphologically similar, and many of them formed two distinct types of colony—one a mucoid opalescent, and the other a non-mucoid transparent, colony. No relation could be established between these different types and the species of animal from which the strain was isolated or the pathological character of the disease to which it had given rise. All strains fermented glucose, fructose, sucrose, mannite, and sorbite; some also fermented glycerin, l-dulcite, l-arabinose, d-xylose, d-galactose, d-mannose, maltose, dextrin, glycogen, and starch. According to the fermentation reactions the organisms could be classified into six groups. There appeared to be no correspondence between the fermentative group to which a given strain belonged and the species of animal it was able to attack. Strains of one type could infect more than one different species of animal, and any one species of animal might be infected by more than one type. In practice, the authors consider that for the prevention of the disease in the laboratory all animals coming in should be quarantined, and their blood tested for agglutinins before being allowed to mix with the normal stock.

27 Estimation of Gastric Function

Certain dyes when injected intramuscularly or intravenously are excreted into the stomach, and attempts have been made from time to time to use this as a test of gastric function. T. JENNER (*Münch. med. Woch.*, October 31st, 1930, p. 1883) has tried to correlate the rapidity of dye excretion with certain definite types of gastric disorder as shown by previous test meal examinations and gastroscopy. After passing a narrow gastric tube and giving a test drink, 2 c.cm. of 1 per cent. neutral red is injected intramuscularly. In normal persons the dye is usually to be found in 15 to 20 minutes, in hyperacidity its appearance is more rapid, and in cases of achlorhydria its excretion may be delayed for an hour or more. In practically all cases of catarrhal inflammation of the antrum, excretion of the dye is much delayed, even though the acidity is normal or high. Generalized gastritis has the same effect, irrespective of the type of gastritis present (hypertrophic, catarrhal, or oedematous), but the delay is always particularly pronounced if the antral region is involved. The presence or absence of an ulcer has little influence on the result of the test. It is concluded by the author that, where achlorhydria is absent, delay in neutral red excretion is evidence of the existence of gastritis.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

28 Tuberculosis and Marriage

L. BERNARD (*Le Scalpel*, November 8th, 1930, p. 1290) concludes that the risk of inheritance of tuberculosis is almost negligible; if any bacillary infection occurs through the placenta, it must be very rare. The fact that separation of newborn children from tuberculous parents gives a negative cuti-reaction points in the same direction. Most of the cases of tuberculosis which occur are due to subsequent infection from relatives. Prophylactic vaccination and careful attention to the risks of such infection will do much to prevent the onset of the disease. With regard to conjugal infection, the author states that in such cases the evidence does not point to recent infection, but rather to the activation of an old lesion contracted in infancy. Recent statistics relating to 535,000 tuberculinized families gave a proportion of 10 per cent. conjugal infection. When the infected member in the family shows signs of tuberculosis, it is generally some time after the death of the infecting partner, which shows that the distress of mind or of affairs which often follows plays an important part in the etiology. Since widows are more likely to be affected in this way, secondary tuberculosis is more often met with in them than in widowers. Extrapulmonary tuberculous infections, if cured, are no bar to marriage, with the exception of genital tuberculosis. Bernard discusses different types of pulmonary tuberculosis in relation to marriage, insisting that each case must be considered on its own merits. Marriage is forbidden when the tuberculous process is active, but when it has been arrested the patient may be allowed to marry, though in the case of the woman the additional risk of pregnancy has to be remembered. Fibroid types of localized caseous types of tuberculosis do not seem to be materially affected by the risks of maternity.

29 Spontaneous Tetany in Adults

H. A. SALVESEN (*Acta Med. Scand.*, October 17th, 1930, p. 511) reports three cases of spontaneous tetany in women. In his first patient, an unmarried woman aged 46, the condition appeared to be idiopathic and due to a low blood calcium content. Tetany occurred only in winter and was probably referable to deficient sunlight. Ultra-violet irradiation restored the blood calcium content to the normal and brought about general improvement, the patient gaining 11 lb. in weight. The author's second patient, a married woman aged 25, suffered from tetany and diarrhoea, which were cured by calcium administration. Apparently this was a case of " maternity tetany " brought on by temporary thyroid deficiency. Salvesen's third patient was a married woman, aged 45, who had had several abortions. After prolonged dyspepsia and diarrhoea, she developed a severe attack of tetany, the stools containing 4.5 per cent. of fat. She improved for a time but then died, and the necropsy revealed an atrophic, cirrhotic pancreas. The author suggests that in this case the tetany was not due to hypocalcaemia, but was probably a low chloride tetany in a patient suffering from pancreatic atrophy and consequent fatty diarrhoea.

30 Skin Coloration in Renal Insufficiency

E. BECHER (*Münch. med. Woch.*, November 7th, 1930, p. 1922) has studied the pale yellow coloration of the skin which is often associated with renal insufficiency, especially when there is contracted kidney. The condition contrasts with the skin coloration found in pernicious anaemia, where the whole body is tinted and the serum and urine show abundant colouring matter, in that the appearance of the skin in renal cases is limited to the face and hands and to those parts of the body exposed to the light; the serum is not yellow, and the urine is pale or colourless. Becher finds that in this pale urine, in the serum, and in extracts of the tissues there is a series of chromogens which are transformable into colouring matter by oxidation processes. The excision of both kidneys from an animal is not followed by yellow staining of the serum or tissue extracts. After removal of the entire intestinal tract the urine secreted is pale and free from colouring substance and chromogens, but urochromogen was found in the bowel content. The urochromogen passes by the blood to the kidneys, where it is oxidized into colouring matter, and thence excreted. In the diseased condition of contracted kidney it is probable that there is an impaired oxidizing action on the chromogens which are retained in the tissues and in the blood and carried to the skin. A portion of skin from the back of a patient who had died from contracted kidney was extracted with trichloracetic acid. The extract was colourless at first, but after exposure to light it became yellow; in the same manner the pale urine, after standing in the light, assumed the yellow colour of normal urine. Sunlight converted the colourless chromogen into a coloured substance; in the same way the exposed parts of the body were influenced and became coloured.

Surgery

31 Treatment of Phalangeal Bone Lesions

L. H. MCKIM (*Canadian Med. Assoc. Journ.*, November, 1930, p. 642) considers that only rarely is it absolutely necessary to sacrifice a finger on account of an infective process involving the bone, and emphasizes the importance of treating infections of the fingers conservatively, particularly those with bony involvement. Osseous changes due to infection, and demonstrable by *x* rays, occur earlier in the terminal phalanx of the finger than elsewhere in the body. The presence of a bony lesion, revealed by *x* rays or by an operation, does not necessarily indicate that the formation of a sequestrum will follow. If and when such formation does occur, the loss of even a large portion of a phalanx does not involve amputation of the whole finger. Three cases which illustrate these points are reported. The treatment adopted with success in these patients was incision, removal of a sequestrum if present, and packing the cavity.

32 Post-operative Urinary Incontinence

A. E. GOLDSTEIN and B. S. ABESHOUSE (*Arch. of Surg.*, November, 1930, p. 729) define true or complete incontinence as the complete loss of control of urination and the existence of urinary dribbling at all times, while partial incontinence implies a faulty control of urination, with dribbling between urination on exertion or at the end of urination. It is suggested that one or other form of incontinence exists after prostatectomy more frequently than statistics would show. Incontinence of urine following prostatectomy is less frequent after the suprapubic method than the perineal method of operation, and of 220 cases under review it occurred in only one case out of 134 suprapubic prostatectomies, but in five cases out of 86 treated by the perineal method. Temporary incontinence is a frequent occurrence after either form of prostatectomy, due either to a slight cicatricial contraction in the prostatic urethra or about the vesical neck, in which case instrumental dilatation at frequent intervals will cure the condition, or else to an anaesthesia of the urethra and vesical neck as a result of trauma when the prostate was removed. In this case control is soon re-established if the nerve supply is intact. Bladder exercises after operation help to improve the tone of the vesical sphincters. Permanent incontinence is due to some anatomic or mechanical defect involving both sphincters, and is the post-operative result of manipulation. Urinary incontinence more frequently follows injury to the external than to the

internal sphincter. Injury to the vesical sphincters in perineal prostatectomy may be avoided by retracting the external sphincter and transverse perinei muscles upward; by making the urethrotomy incision for the introduction of the Young prostatic tractor below the external sphincter near the apex of the prostate; by an extra-urethral removal of the hypertrophied gland; and by exerting traction on the prostatic tractor in an upward and outward direction. Methods of treatment for post-operative urinary incontinence range from a plastic operation through the combined suprapubic and perineal routes on both vesical sphincters to the transplantation of a voluntary muscle about the neck of the bladder or urethra. A further paper is promised giving the comparative results of the various methods.

33 Typhoid Phlebitis and Pulmonary Infarction

P. VOIGNIER (*Thèse de Paris*, 1930, No. 307) states that pulmonary embolism is a rare occurrence in the course of typhoid phlebitis. The possibility of its occurrence, however, renders immobilization as necessary as in any other form of phlebitis. Embolism may give rise to sudden or rapid death, and should always be looked for at the necropsy of a typhoid patient who has died suddenly. Pulmonary embolism may also be manifested by haemoptysis. The pathogenesis of infarcts occurring during typhoid fever may be very complicated, but the coexistence of phlebitis and an infarct renders their embolic origin very probable. The prognosis of pulmonary embolism in typhoid fever should be very guarded, owing to the diminished resistance of the patient and especially the involvement of the myocardium. The thesis contains the histories of three cases in patients aged 15, 19, and 36, two of which were fatal, while the third patient only became convalescent after an illness of three months' duration.

Therapeutics

34 Lobar Pneumonia Treated Unsuccessfully with Convalescent Serum

R. T. BEEBE and W. D. SUTCLIFF (*New Eng. Journ. Med.*, October 23rd, 1930, p. 823) have investigated the value of injecting homologous convalescent serum in the treatment of lobar pneumonia. To obtain the best results treatment must be started early, using larger quantities of a serum having a high protective power for mice against the homologous organism. Blood from selected patients was collected four to seven days following the crisis, since protection has been shown to be at its maximum at that time. The donors were those in whom the disease had run a typical course, and in whom the type of organism had been definitely determined. From 300 to 500 c.cm. of blood was collected into a closed flask and allowed to clot at room temperature for six hours. The serum was then placed in an ice-box for twenty-four hours, pipetted off, passed through a Berkefeld filter, pipetted into flasks, and stored in an ice-box. The serum was shown to contain a certain amount of specific protective substance for mice. Two patients with Type II and one with Type III lobar pneumonia were given intravenously amounts varying from 310 to 440 c.cm. within forty-eight hours on the third and fourth days of the disease. One of the Type II patients made a normal recovery after running the usual eight days' course, while the other two became progressively worse and died. Although treated under favourable circumstances, the authors conclude that the results fail to show any benefit from the use of homologous convalescent serum.

35 Treatment of Cardio-vascular Syphilis

J. E. MOORE and J. H. DANGLADE (*American Heart Journal*, October, 1930, p. 148) have studied 90 patients with syphilitic aortic regurgitation, and 43 with aneurysm, in all of whom the ultimate outcome has been traced. While treatment in a few had been adequate for more than a year, in others it had been inadequate, and in some there had been little or no treatment. The nature and intensity of the therapeutic measures employed depended upon the condition in which the patient was first seen. If he was suffering on admission from congestive failure, pronounced pain, or paroxysmal dyspnoea, he was treated in bed by the usual remedies until well compensated. The dangers of therapeutic shock and too rapid resolution of syphilitic inflammatory tissue were guarded against by initial treatment for three months with iodides and bismuth or mercury. A course of twelve neoarsphenamine injections was then given, starting with doses of 0.1 gram and increasing to 0.3 gram. Such courses alternated with courses of bismuth and iodides over a period of at least two years. In patients suffering from aortic aneurysm it was found that while the duration of life in those untreated averaged nine months, this period might be prolonged to an average of nearly six years if treatment for a year or more were undertaken. It was frequently noticed that treatment quickly produced great relief from symptoms, with the result that some patients failed to return for more, thinking they were well. Among the group suffering from aortic incompetence the period of survival after the onset of symptoms in untreated patients averaged two and a half years. If a year or more of adequate treatment had been received the duration of life was extended generally to about five years.

36 Malaria Therapy in Dementia Paralytica

H. R. UNSWORTH (*Journ. Amer. Med. Assoc.*, September 13th, 1930, p. 772) considers that malaria therapy gives the best results in early cases of dementia paralytica, and that little improvement can be expected in patients in the late stages of cerebro-spinal syphilis, when the colloidal gold reduction is very heavy in the first five tubes. The earlier age incidence of dementia paralytica is remarkable. Before the introduction of intravenous arsenical treatment the average age of these patients was over 45 years, and Unsworth attributes this earlier incidence to the promiscuous and unintelligent employment of arsenobenzols. In view of the destructive pathological changes in the cerebral cortex and meninges, it appears hopeless to expect great improvement from chemical therapy, and there is actual danger of causing further destruction. In an analysis of 28 dementia cases inoculated successfully with malaria, Unsworth found that the patients who deteriorated rapidly subsequently were those who had received energetic arsenobenzol treatment. Hence, in selecting patients for malaria therapy, he prefers those who have received little or no arsenobenzol treatment, who are of vigorous physique and otherwise sound organically, and whose colloidal gold reduction is incomplete in the paretic zone. In such patients the response has been satisfactory; some, after three years, are practically normal mentally, while there has been remarkable serological improvement. Those patients who show little or no improvement after malaria treatment are chronic cases with profound colloidal gold changes in the paretic zone, of poor physique, and usually there is visceral disease, especially when energetic arsenical treatment has been given; these patients respond slightly, if at all, to malaria therapy. He has had only two patients who appeared to be immune to malaria, and considers arsenic to be definitely contraindicated in late neurosyphilis.

Anaesthetics

37 Barbitone Derivatives in Intravenous Anaesthesia

J. S. LUNDY (*Anesthesia and Analgesia*, September-October, 1930, p. 210) has employed several drugs of the barbituric acid series in over 2,000 cases at the Mayo Clinic. In 753 cases sodium iso-amyl-ethyl barbiturate (sodium amytal) was given intravenously. In 475 of these cases (63.08 per cent.) a general anaesthetic was administered subsequently. In 23.1 per cent. of these patients, restlessness, sometimes amounting to delirium, was observed after the operation. Pulmonary oedema occurred in one case, broncho-pneumonia in four, and pulmonary embolism in one. In adult patients the author slowly injects 18 to 30 grains in solution of not over 20 per cent. strength; he has given as much as 45 grains intravenously. Doses of

from 45 to 100 grains are dangerous, although some patients have recovered after much larger doses. The drug produces a rapid drop in the blood pressure, and Lundy discontinues the injection if the systolic pressure falls below 85 mm. Hg. More recently he has used sodium ethyl-1-methyl-butyl barbiturate (sodium embutal) in 403 cases; in 52 of these the drug was injected intravenously, in 15 cases it was given per rectum, and in the remainder orally. Apparently this drug is more powerful; 9 to 15 grains suffice to ensure a similar degree of hypnosis to that obtained from 18 to 30 grains of sodium amytal. Sodium embutal produces less restlessness and delirium. An overdose may cause pulmonary oedema or broncho-pneumonia such as may follow administration of any other barbiturate. Lundy administers sodium embutal in 6.66 per cent. solution. He believes that its sedative effects (by allaying fear) reduce the risks of general anaesthesia. Lundy's conclusions are as follows. (1) The barbiturates should be given in small (hypnotic) doses, on account of their well-known dangers. Their employment for intravenous anaesthesia is unjustifiable. (2) Intravenous administration of tribromethyl-alcohol (avertin) is not so good as the rectal method. (3) Sodium amytal and sodium embutal are preferable to any of the other barbiturates. (4) Sodium amytal is definitely antispasmodic and hypnotic, and should be employed when a prolonged effect is desired. (5) Sodium embutal is antispasmodic and sedative, and is useful in preparing patients for operation, and in cases in which a shorter duration of the effect is desired. (6) Patients are enthusiastic regarding the action of barbiturates. (7) The hypnotic dose of a barbiturate should be given at night before operation, and repeated in the morning, together with a preliminary dose of morphine and atropine.

38 Rectal Narcosis in Ophthalmic Surgery

O. GAYER MORGAN and J. M. LEES (*Brit. Journ. of Ophthalmol.*, November, 1930, p. 577) remark that the choice of anaesthetics for ophthalmic surgery is important and difficult. In some cases local anaesthesia is best, while in others more complete analgesia or anaesthesia is required, with or without the retention of the patient's co-operation. Large doses of morphine associated with a local anaesthetic frequently cause post-operative nausea or vomiting. The mask usually employed in a general anaesthetic is often in the way of the operator, while in old people with chronic bronchitis and emphysema a general anaesthetic, such as is required in septic or inflamed conditions, may set up serious complications. Chloroform, though the most satisfactory anaesthetic, is shunned by anaesthetists, while ether, though safer, produces inconvenient congestion of the tissues. Rectal narcosis with avertin in minimal doses (0.06 gram per kilo) allays fear and renders a certain amount of pain bearable without destroying co-operation on the part of the patient. The administration of larger doses (0.07 to 0.08 gram per kilo), combined with local anaesthesia, takes the place of general anaesthesia, or reduces the amount required. A maximum of 0.09 gram per kilo was used for such procedures as extirpation of the lacrymal sac, plastic operation around the eye, and enucleation. In certain cases chloroform and ether, or intratracheal gas and oxygen, were required. The method of administration followed the instructions in the Bayer handbook. An early morning enema wash-out was followed one hour before operation by the injection of 0.25 grain of morphine with 0.01 grain of atropine; these drugs may be omitted. Half an hour before the operation the calculated amount of avertin was heated to not more than 40°C., and tested by Congo red; a blue colour indicates a decomposition which leads to colitis. It was then administered slowly over a period of five to ten minutes by rectal tube. A return of this dose by the patient precluded any further administration for four hours. The patient was surrounded by screens and the ears plugged by wet cotton-wool. Sleep followed in ten minutes, and full narcosis in twenty-five to thirty minutes, lasting one and a half to two hours. The jaw was kept forward to prevent asphyxia. The patient awoke in two or three hours and fell into a deep and natural sleep again, following which there was complete amnesia for the narcotized period. The authors find that avertin affects the respiratory centre, and the patient often becomes a little cyanosed; an overdose results in death almost inevitably. The blood pressure falls by 25 to 30 mm. Hg, and the amount of venous congestion that takes place may cause difficulty in extirpation of the lacrymal sac. Avertin, if pure, causes no colitis, and may be used in severe toxaemia and sepsis. This drug should not be employed for patients under the age of 16, or in those who have, or have had, nephritis or severe liver disturbances; but it has been used up to the age of 87. The authors have used avertin successfully in 50 cases, including cataract extraction, acute glaucoma, excision, evisceration, acute dacryocystitis, extirpation of the lacrymal sac, and plastic lid operations.

39 Pulmonary Complications of General Anaesthesia

R. T. KNIGHT (*Minnesota Med.*, October, 1930, p. 694) states that pulmonary complications predominate as one of the most important considerations in choosing an anaesthetic; they are the chief cause of post-operative morbidity and mortality. A review is given of 1,015 general anaesthesias at the University hospitals of Minneapolis. Pulmonary complications followed in 30 cases (3 per cent.), with 9 deaths (0.9 per cent.). Six of the complications, including 4 of the deaths, occurred either too late to be referable to the anaesthesia, or as part of a general septicaemia, due to the surgical condition rather than to the induction. Ether administered alone caused about twice as many pulmonary complications as other anaesthetics. When used as a reinforcement to other anaesthetics it gave rise to five times the pulmonary complications in upper abdominal operations, and twice as many in other types of operations. Upper abdominal, as compared with extra-abdominal, operations were followed by pulmonary complications ten times as frequently with ether reinforcement, five times as frequently with ether alone, and four times as often with other anaesthetics. Knight considers that this indicates that ether is a potent factor in pulmonary complications, but that the upper abdomen as an operative field is a still more important consideration. Ethylene causes less pulmonary irritation than any other inhalation anaesthetic; this feature is almost negligible. Knight prefaces his paper with a few remarks on the explosion hazard, with special regard to ethylene; he classes this as a pulmonary complication, since death occurs from explosion within the lungs.

Obstetrics and Gynaecology

40 Eclampsia in a Diabetic

J. S. QUIN and R. H. MICKS (*Irish Journ. Med. Sci.*, November, 1930, p. 612) record a case of eclampsia in a young diabetic primipara. The diabetes had started two years before the pregnancy, and the patient had been managing her own insulin treatment successfully. When pregnancy began she sought advice about her diet and dosage. The pregnancy ran an almost normal course with the exception of a dental abscess which formed about the sixth month. Sugar appeared in the urine, and the insulin dosage was accordingly increased from 17 to 30 units a day. About the eighth month slight oedema developed in the legs; the systolic blood pressure was 150, and the urine was free from albumin. There was no tendency to pathological obesity. One or two weeks before term the patient became toxaemic. Prophylactic treatment on the lines laid down by Tweedy did not prevent fits, which set in shortly before the induction of labour; 15 occurred in eleven hours before the patient was delivered of a dead infant weighing 12 lb. The death is attributed to the unusual difficulty encountered in delivery, and not to the toxaemia. The eclampsia ceased immediately after delivery, and the patient made a rapid and complete recovery from her toxaemic state. A full description of

the treatment adopted is described. No trouble was experienced from ketosis or hypoglycaemia. Owing to the diabetes, glucose was freely administered, and it did not appear to hinder in any way the success of the prophylactic eliminative treatment. Although the view is held that eclampsia can generally be avoided by diabetic measures early in pregnancy, it is noteworthy that this patient had for no less than two years been on a simple, very moderate, and uniform dietary. On resuming normal diet the patient appeared to have acquired an increased tolerance for carbohydrate, being able to take 75 grams a day without glycosuria and with the help of only 5 units of insulin every morning. The authors conclude that the free administration of glucose, combined with moderate insulin dosage, does not interfere with the treatment of eclampsia, and enables a diabetic to withstand a severe eclamptic puerperium without damage to her metabolic functions.

41 The Use of Glandular Extracts in Labour

M. DAVIS (*New England Journ. Med.*, October 16th, 1930, p. 771) gives a complete report in detail of 50 women on whom thymophysin was used to shorten labour. This preparation is a mixture of pituitary and thymus extracts, on the use of which Dr. Nicholas Temisvary of Budapest made a preliminary report at the German Gynaecological Society in 1925; Davis now reports favourably as the result of his own experience of its use. He found it effective and beneficial in every case, there being no untoward maternal or infantile sequels. He states that thymophysin can be given as soon as regular labour is established. The preferable dose is 0.5 c.cm., repeated after a lapse of 45 to 60 minutes. In every case labour was definitely shortened after the administration of thymophysin. Apparently there was no danger of tetanic contraction of the uterus, particularly if two doses of 0.5 c.cm. were given as recommended by Davis. Cases of secondary inertia of the uterus responded well if the patient was not too fatigued. With careful watching it was found useful to allow trial labour in borderline Caesarean cases. Thymophysin was not effective in inducing labour, and hence could be used to distinguish between true and false labour. A complete statement of the progress of labour is given in each of the 50 cases, together with an account of previous labours. After the administration of thymophysin the minimum time of delivery in primiparae with anterior presentations was 40 minutes; with posterior presentations it was 45 minutes; whereas the maximum time otherwise was 6 hours for anterior and 9 hours 45 minutes for posterior positions. The average time of delivery was 2½ hours for anterior positions and 4½ hours for posterior. In multiparae these times were considerably shortened, the average time of delivery for anterior presentations being one hour and for the posterior it was 4 hours 20 minutes.

42 Rupture of Uterus following Caesarean Section

H. A. RIDLER (*Med. Journ. of Australia*, September 27th, 1930, p. 440) records two cases of Caesarean section in which, in a later pregnancy, further sections for uterine rupture were required, resulting in the organ being saved. In the first case, a patient aged 20, a stillborn child was delivered by Caesarean section; fourteen months later a living child was obtained by the same method. Two years afterwards, about three weeks before term, the previous uterine scar ruptured and the intact membranes presented through the wound. A living child was delivered, and the edges of the old uterine wound were trimmed and sutured; recovery was uneventful, the uterus and normal menstruation being retained. The second patient, aged 26, had a Caesarean section performed in her first pregnancy; during labour three years later the uterus ruptured in its lower segment, while the former Caesarean scar remained intact, but was incised to deliver a stillborn child. Recovery followed suture of both the ruptured lower segment and the incision in the old scar, and the uterus was saved. This latter case is cited by Ridler as an example of the fact that rupture of the lower uterine segment can take place during labour while a former Caesarean scar in the upper segment remains intact.

Pathology

43 The Haemic Effects of Quinine and Alkalis in Malaria

T. A. HUGHES and D. L. SHRIVASTAVA (*Indian Journ. Med. Research*, October, 1930, p. 501) have already shown that quinine in antimalarial doses produced blood changes (leucocytosis) indicative of splenic contraction, and that the effect of oral quinine was greatly increased when alkalis were given in quantities sufficient to render the urine alkaline. The results of further experiments carried out on individuals whose spleens were enlarged from chronic malaria, but who showed no signs of active disease, are now recorded. It was found that adrenaline produces a greater splenic contraction when large doses of alkalis are given. Alkalis do not increase splenic contraction following intravenous injections of quinine in antimalarial doses. During the oral administration of quinine and alkalis the leucocyte count promptly rises, but falls to the original level after two to four days, and there is no evidence of cell proliferation. When the spleen is fibrous and indurated, the leucocytic response to both quinine and adrenaline is abolished or greatly diminished. The intravenous injection of quinine in malaria does not appear to possess any advantage over oral administration as regards its ultimate therapeutic action. Discussing the significance of the enlarged malarial spleen, the authors state that splenomegaly in chronic malaria may be due mainly to proliferation of the reticulo-endothelial cells, to fibrosis, or to both. In a further study (ibid., p. 511) on the haemic action of plasmochin in malaria, these investigators found that this drug, given by the mouth for four to six days in daily doses of 0.1 gram, caused no splenic contraction. The most constant changes in the blood were: a fall in the red and total white cells; a temporary rise in the lymphocytes; and a sharp fall in the monocytes when these cells were at or above the upper limit of the normal.

44 Cholesterin Titre of Blood Serum

G. STIRPE (*Il Policlinico*, Sez. Prat., November 10th, 1930, p. 1625) has criticized the views of Chauffard and others that increase in the cholesterin content of the blood serum may be exogenous and referable to diet. To a series of 30 persons, 10 of whom were normal, 10 had raised arterial tension, and 10 had biliary calculi (the last two groups having more or less marked hypercholesterinaemia), was given a fixed diet, to which was added daily an amount of cholesterin varying from 1.5 to 2 grams contained in 4, 6, to 10 eggs. The cholesterin content of the blood serum was determined after four, seven, and ten days of this regime, by Grigaut's method. The author was unable to establish any significant difference between the cholesterin titres of the serum before and after the experiments. The slight changes observed were probably due to errors inseparable from colorimetric determinations.

45 The Germination of Tetanus Spores

B. C. J. G. KNIGHT and P. FILDES (*Biochem. Journ.*, 1930, vol. xxiv, p. 1496) have worked out what is usually described as the "degree of anaerobiosis" necessary for the germination of tetanus spores. The method used was to poise the oxidation-reduction potential of a sample of sterile broth at a constant level by passage of a stream of very dilute oxygen in nitrogen, controlled by simultaneous electrometric observation of the potential. After the potential had remained constant for an hour or two, spores were added to the medium; samples were withdrawn at intervals to ascertain the time at which germination started. Working with a medium of *p*H 7.0 to 7.65, it was found that germination took place readily at an oxidation-reduction potential of Eh 0.00 volt, but that up to Eh + 0.11 volt a limited amount of germination occurred, though the emerging bacilli were often malformed and divided only after considerable delay. Above Eh + 0.11 volt no germination was observed. Germination occurred most rapidly when the Eh was negative to 0.05 volt, the time required being only about four hours; at Eh + 0.10 volt it was about eight to twelve hours.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

46 Enteric Fever during the War

A. HANNS (*Rev. d'Hyg. et de Méd. Prév.*, November, 1930, p. 817) states that during the early months of the war the French army was attacked by typhoid fever, but the disease was most prevalent in the Third Army, which chiefly occupied the Argonne. The daily incidence in the whole army was from 400 to 500 cases a day, of which 200 to 250 were in the Third Army alone. The incidence of enteric per 1,000 men at this time was: November, 1914, 6.12; December, 1914, 7.24; January, 1915, 7.0. In February, 1915, the number of cases began to fall, and by June the incidence per 1,000 was only 1.4. This first epidemic, which was cut short chiefly by inoculation on a large scale, was mainly one of typhoid fever. Of 98 positive blood cultures, 93 showed *B. typhosus* and only 5 *B. paratyphosus* B. In July, 1915, a fresh outbreak of enteric fever occurred, the number of cases rising in September to 6,629, but on this occasion was mainly one of paratyphoid, especially of paratyphoid A, the percentage of which was 40.9 in July, 59.3 in August, 76.3 in October, and 92.4 in November. The predominance of paratyphoid infection on this occasion was due to the fact that antityphoid inoculation furnished no protection against paratyphoid infection. A mixed paratyphoid A and B vaccine was then given, and in February, 1916, the incidence of paratyphoid, first of B and then of A, began to fall. In July, 1916, however, a rise in the incidence of typhoid occurred almost entirely among the Third Army, the explanation of this being that the immunity conferred by antityphoid inoculation did not exceed a year. In May, 1916, therefore, a further inoculation was ordered, this time with a complete T.A.B. vaccine; a fall in the incidence began at once, and no further rise occurred during the year. The official percentage figures for the enteric mortality for each year of the war were as follows: 1914 (5 months), 17.97; 1915, 9.77; 1916, 3.82; 1917, 8.15; 1918, 16.5. The fatality of the different epidemics of enteric during the war depended mainly on the distribution of typhoid and paratyphoid. The first epidemic (November, 1914, to April, 1915), in which the fatality ranged from 12.5 to 17.9 per cent., was one of typhoid. The second epidemic (June to September, 1915), which was characterized by a very low death rate—2.5 to 3.53 per cent.—was one of paratyphoid. The third outbreak (July to November, 1916), in which the death rate suddenly rose to 5.6 per cent., was mainly one of typhoid. During the final period (1917 to 1918), when the enteric incidence remained at a constantly low level, the death rate rose to 10–11 per cent., and the majority of the cases were typhoid fever.

47 Late Effects of the Specific Treatment of Syphilis

E. GOTTLIED and N. I. NISSEN (*Ugeskrift for Laeger*, November 6th, 1930, p. 1039) report investigations which do not support the view that there is a connexion between salvarsan treatment and the frequency of syphilitic aortitis. Their cases of aortitis and other diseases of the heart and aorta in patients who had suffered from syphilis had either been treated with mercury alone or had received no specific treatment whatever. Their investigations consisted of a scrutiny of the records of a hospital between November, 1925, and July, 1929. In their first category they put the patients showing late signs of syphilis, clinically or post mortem. In their second category they placed those patients whose only sign of a previous infection was a positive Wassermann reaction. In their third category were those patients who admitted having contracted syphilis, but who no longer showed any signs of it. No case was included in this classification in which the original syphilitic infection dated back less than ten years, since a smaller interval would, generally speaking, be insufficient for the development of demonstrable syphilis of the vascular system. The cases were further classified according to whether they had not received treatment, had been treated with mercury, or had been treated with salvarsan, with or without mercury. Of the 87 patients with late syphilitic lesions, only 2 had been given injections of salvarsan at the beginning of the disease; the remainder had either received no treatment or had been treated most inadequately with mercury. On the other hand, in the third group, among the 31 patients with a history of a previous infection with syphilis, but without any syphilitic manifestations in the period under review, there were as many as 16 who had been treated with salvarsan.

48 Diphtherial Infection of the Umbilicus

J. C. MONTGOMERY (*Amer. Journ. Dis. Child.*, November, 1930, p. 968), who records a personal case and has collected from the literature 42 other examples in which the diagnosis was proved by bacteriological examination, distinguishes three groups of diphtheria of the umbilicus, namely: (1) those with no clinical evidence of infection but affording positive cultures from a moist umbilicus (3 cases); (2) those with a slight caseous deposit and positive cultures (22 cases); and (3) those with more extensive evidence of infection (17 cases). In several instances diphtheria was found in other parts of the body, especially the nose. Montgomery's patient was a male infant who developed some redness round the umbilicus at the age of 3 weeks. This was followed by an area of swelling which gradually reached the size of the palm of the hand. A few days later the skin about the umbilicus presented a brownish-red discoloration, and in the umbilicus there appeared a small fistulous opening; in this a greyish exudate was seen, and from it a growth of virulent diphtheria bacilli was obtained. Death ensued from paralysis of the diaphragm and myocarditis. The author has found no other case on record of diphtheria confined to the umbilicus and associated with myocardial or nervous complications.

49 Chancre of the Tongue

J. VILENSKY (*Thèse de Paris*, 1930, No. 219) states that chancre of the tongue, which was first described by Astruc in 1726, is almost always due to inoculation from mucous tubercles. The modes of infection are either direct (bucco-buccal, bucco-genital, bucco-anal, or bucco-mammary) or, more frequently, indirect. Chancre of the tongue occupies the third place in the list of extragenital chancres, those of the lips and tonsils being the most frequent. It is three to three and a half times more frequent in males than in females, whereas the other extragenital chancres are most frequent in females. The relative frequency of lingual chancre to other extragenital infections is 5 per cent. As a rule lingual chancre is single, but double chancres are not very rare. The age most frequently affected is between 20 and 30. The sites of the tongue affected in order of frequency are the tip, anterior third of the dorsum, base, centre, and sides. The lower surface is rarely involved. Four forms of lingual chancre may be described—namely, ulcerative, hypertrophic, mixed, and phagedaenic. The lesion is only slightly tender, and does not cause much trouble. It must be differentiated from herpes, aphthae, mucous tubercles, the sublingual ulcer of whooping-cough, secondary and tertiary syphilitic ulcers, acute tuberculous ulcers, cancer, tertiary sclerotic glossitis, and dental glossitis. The secondary stage appears unusually early—on the average 25 days after the appearance of the chancre—and is very often characterized by an intense eruption, which shows a predilection for the thorax, arms, neck, and sometimes the face. The

nervous complications of syphilis and the common tertiary manifestations are unusually frequent. Treatment is the same as for syphilis in general, but local treatment is necessary to prevent the spread of the infection.

50 Perleche in Adults

E. A. SKOLNIK (*Arch. of Derm. and Syph.*, October, 1930, p. 642) records five cases, in adults aged from 41 to 46, of this fissured condition of the angles of the mouth, which usually is confined to children. In each case the disease assumed a chronic form, the shortest duration being three years. The lesions were bilateral, and varied from 7 to 12 mm. in length. All were roughly wedge-shaped, fissured in their long dimension, and showed slight maceration and thickening. There was some scaling of the erythematous areas, which stopped abruptly at the vermilion border of the angles of the mouth. The lesions neither bled nor ulcerated. The patients complained only of a sensation of dryness and of slight pain on opening the mouth widely. Cryptococci were isolated from the lesions in each case, and inoculation of a pure culture of cryptococcus under the normal breast produced a lesion similar to those at the angles of the mouth, which disappeared spontaneously in three or four weeks. Exaggeration of the normal fold at the angle of the mouth by a drooping upper lip apparently contributes to the etiology and chronicity of perlèche.

Surgery

51 Burns in Children

E. C. DAVIDSON (*Minnesota Med.*, November, 1930, p. 775) agrees that the profound metabolic disturbance following severe cutaneous burns is due to toxaemia caused by the absorption of some toxic substance or substances from the burned area. The toxaemia is best combated by a local treatment which would prevent absorption from the site of the burn. Tannic acid accomplishes this by forming more or less stable, insoluble compounds with the burnt tissue. Davidson claims that treatment of burns with this drug, followed by exposure to air, lessens toxaemia, and as an initial dressing the acid is analgesic. Its local astringent effect prevents loss of body fluid, and secondary infection is greatly limited by the absence of a favourable nidus for bacterial growth. Scar-tissue formation is less marked than with other methods; moreover, the protective layer of coagulated protein forms a framework for the growth of young epithelial cells over the denuded area. The prognosis in burns in childhood must be guarded, and depends on the depth rather than the extent of the burns. The clinical course of burns may be divided into four stages: shock, acute toxaemia, septic toxaemia, and healing. In children shock almost invariably occurs. The child should be placed in a light tent on sterile sheets. Blebs should be opened, all loose tissue carefully removed, and the denuded area thoroughly cleansed without excessive traumatism. The burned part is then sprayed with a 5 per cent. aqueous solution of tannic acid every fifteen minutes until the surface is a light brown colour. Normal saline solution should be injected subcutaneously, intravenously, and rectally, and fluids be given by the mouth. If shock threatens, transfusion is performed, and this is repeated if necessary. Intravenous normal saline solution should be injected daily and sedatives be administered at night till the period of toxaemia is past. Since children tolerate granulating wounds very badly, skin grafting should be performed promptly, generally in the third or fourth week. Pinch grafts are advised for large areas. Burns involving the axilla are very important owing to the disability of arm-chest adhesions. This deformity may be largely avoided by keeping the arm in abduction during healing. If webbing occurs the web should be divided high up in the axilla, anterior and posterior flaps be turned into this newly formed axilla, and the lower defect be filled with Thiersch or pinch grafts. The treatment of deformities following old burns is briefly dealt with.

52 Rupture of the Spleen and Left Kidney

R. DESJACQUES, F. BÉRARD, and H. LATHURAZ-VIOLLET (*Rev. de Chir.*, November, 1930, p. 296) record 47 cases of rupture of the spleen associated with rupture of the left kidney. These cases occurred nearly always in the male sex, the most common age being between 10 and 20 years. The cause is seldom pathological, and is nearly always an accident, the condition resulting from severe trauma. Since the kidney is firmer and less friable than the spleen, it does not usually suffer so much damage in an abdominal injury. It is nearly always necessary to remove the spleen, and in 13 cases in which this was not done death invariably occurred. In 33 cases the capsule was ruptured, and in two instances the spleen was crushed; in another case it was found to be torn at the junction of the upper third with the lower two-thirds, the upper pole being almost completely separated. Lesions of the kidney are frequently less serious than those of the spleen; in the majority of cases the capsule only is ruptured, but in eight of the cases reported it was torn from its pedicle. There may be associated lesions in other organs, such as the liver, pancreas, or diaphragm. The most noticeable symptom is that of shock, and death may occur quickly from severe internal haemorrhage, of which the chief signs are a progressive weakness, pallor, coldness of the limbs, a rapid pulse, and a variable temperature. Pain is felt in the left flank, and may be generalized over the whole abdomen; it may also be localized in the lumbar region, or referred to the left shoulder. Ecchymosis may also be present, and palpitation will provoke abdominal pain and contraction of the abdominal wall, which may be localized in the splenic area. Abdominal meteorism may be observed, and percussion of the abdomen may reveal dullness in the left flank in 25 per cent. of cases. The prognosis is grave; out of the 47 cases under review 32 patients (68 per cent.) died. Treatment, which must be surgical, depends mainly for its success upon the condition of the spleen, and also upon the rapidity with which an operation can be undertaken. In cases where no operative treatment was employed, or where the kidney only was dealt with, the mortality was 10 per cent. When the spleen alone was removed the mortality was reduced to 57 per cent., and when operation included the spleen and the kidney only 50 per cent. of deaths are recorded.

53 Diaphragmatic Paralysis by Phrenic Evulsion

H. WILSON (*Med. Journ. of Australia*, October 11th, 1930, p. 487) presents a critical review of phrenic evulsion in 200 patients, including the indications for and the results of the operation. The diagnosis of diaphragmatic paralysis is best made by radiology. There is no direct physical sign of unilateral paralysis, but a combination of signs gives indirect evidence; when the thorax is grossly altered, diagnosis may be impossible. Hemidiaphragmatic paralysis on the same side always occurs after phrenic evulsion; the paralysed side rises higher than its fellow, and may continue to rise for six months after the operation. If no gross thoracic alteration exists, the elevation of the paralysed side is influenced by the patient's physique and habitude. The degree to which the paralysed half rises is greater on the right side than on the left, and the paralysis is permanent if more than 2.5 cm. of the nerve is evulsed. The size of the pleural cavity and the lung volume are diminished by phrenic evulsion; this results in relaxation and resting of the whole lung. Compression of the lower pulmonary lobe also ensues, and an average reduction of 18 per cent. of the actual vital capacity follows. The reduction is greatest when the pulmonary disease is not extensive. Untoward symptoms after this operation are rare; slight increase of pre-existing dyspnoea occasionally occurs, but is rarely sufficient to cause complaint or disability. Wilson considers phrenic evulsion a valuable adjunct to thoracoplasty; it produces better collapse in cases of artificial pneumothorax with basal diaphragmatic adhesions. When refills have to be given frequently, it lengthens the interval between them, but in the pneumothorax treatment of phthisis its value in decreasing the incidence of pleural effusion is doubtful, and the results of combined phrenic

evulsion and artificial pneumothorax in bronchiectasis have been disappointing. Marked pulmonary collapse may be obtained with only slight improvement in the amount of sputum and fetor. In pulmonary tuberculosis, this operation benefits the local lesion, toxaemia, and haemoptysis, but only slightly influences the amount of sputum. In bronchiectasis phrenic evulsion alone causes but little benefit. It is of value in assisting drainage from lung abscess and interlobar empyema; it should be considered also in treating pain due to pleural adhesions, and as a palliative measure in pleuro-pericardial adhesions.

54 Varieties of Gall-stone Ileus

O. LUTTEROTTI (*Wien. klin. Woch.*, November 13th, 1930, p. 1399) states that obstruction of the small intestine, especially of the ileum, is the commonest accident to follow ulceration of a gall-stone into the alimentary canal; he cites some illustrative cases. Volvulus also occurs, and may be due to the stone weighing down a loop of intestine into the pelvis and causing kinking. This may also explain some of the cases of obstruction without volvulus, since in one recorded case the stone was palpated through the vagina, dislodged digitally, and later passed per rectum. A gall-stone in the intestine may reach a hernial sac and here cause obstruction owing to narrowing of the gut, without strangulation of the hernia ensuing. Pyloric obstruction due to a gall-stone is a rare condition. The stone in this case may have ulcerated directly into the stomach, or may have been vomited into the stomach from the duodenum. Large intestine obstruction, again, may be due to direct ulceration into the colon, or the stone may have come through the small gut without mishap. It must be remembered here that the mass tends to increase in size on its way down owing to incrustation. The mortality in all recorded cases of gall-stone ileus is serious (56 to 64 per cent.), owing to the high average age of the patients and the advanced stage at which they usually arrive at operation.

55 Milkers' Whitlow

A. KITTINGER (*Zentralbl. f. Chir.*, November 29th, 1930, p. 2980), who records an illustrative case, states that this condition has received little attention owing to its essentially mild character, which allows the milkman to continue his occupation. It is frequently met with in large dairies among the milkers and those employed in cleaning the cows. The whitlow is produced by the fissures in the callosities on the flexor aspects of the milkers' hands becoming inflamed, the irritation being kept up by penetration of small hairs from the cow's udder during milking. Histological examination reveals plasma cells, a large quantity of lymphocytes and pus cells, and inclusion bodies containing fragments of hairs and detritus. Kittinger's patient contracted a subungual whitlow of the right thumb, complicated by periostitis and osteitis. The man was able to resume his work three weeks after an operation, when granulation tissue and masses of fine hairs were removed with a sharp spoon.

Therapeutics

56 The Ketogenic Treatment of Epilepsy

H. F. HELMHOLZ and H. M. KEITH (*Journ. Amer. Med. Assoc.*, September 9th, 1930, p. 707) tabulate the results of treatment by the ketogenic diet method between 1921 and 1930 in the case of 243 children suffering from idiopathic epilepsy. In a former report (1927) cases were classified as (1) free from attacks for a year or more; (2) definitely benefited; (3) not improved. In the present report two cases formerly in class (1) now appear in class (2) on account of recurrence of symptoms after return to a normal diet, though it has been found, as a rule, that freedom from symptoms for nine to twelve months under dietetic treatment is followed by freedom after return to a normal diet. Of the total number treated, 72 are excluded on account of failure to follow the strict diet; of the remaining 171, 30 have been treated for less than one year, and of 141 treated for more than one year, 43 come into class (1), 32 into class (2), and 66 into class (3). Inquiry has been made into the present status of cases reported on in 1927. Of 18 free from attacks for more than one year, 16 remain well on a normal diet, and 2 have been transferred to class (2) on account of recurrences. Of 8 free for less than one year, 5 have had no attacks, 2 show improvement, and 1 has not persevered with the diet. Three patients had recurrences after returning to a normal diet; one has had no more attacks, one has improved, and one has not persevered. Of 20 patients who showed improvement only, 1 has had no attacks, 4 show further improvement, 9 are not benefited, and 6 did not persevere. It has been found that patients who need to be kept constantly in ketosis, in order to be free from attacks, do not tend to cure, and often show no improvement on return to normal diet. Dehydration has not been found to lessen the frequency of attacks. It has been found experimentally that the exhibition of ketone bodies protects animals from the action of convulsant drugs. In certain cases where dieting alone has been insufficient to control attacks, the combination of diet with the exhibition of phenobarbital has given better results than the use of diet or drugs alone. The proportion to the total number of cases treated of the three classes already mentioned is the same in the later series as in that previously reported.

57 Intravenous Administration of Morphine

M. SALZER (*Med. Journ. and Record*, November 5th, 1930, p. 452) advocates the intravenous injection of morphine, slowly given, as a safe and certain method of providing immediate relief in cases of colic and cardiac distress, without exceeding the requisite minimum dose. Half a grain of morphine in solution is very slowly injected into the vein, and the syringe is withdrawn as soon as complete relief is obtained; this occurs much more rapidly than when the alkaloid is administered by the subcutaneous route, and the effects last as long. The value of this procedure is obvious in those cardiac cases where the time factor is of the greatest importance if any chance of saving life is to be taken. Besides being of value in cases of biliary or renal colic, where the aim is to obtain immediate relief with a sufficient dose and no more, it is of use in cases of coronary occlusion, angina pectoris, and acute pulmonary oedema due to acute decompensation.

58 Serotherapy in Meningococcal Septicaemia

CODVELLE and FERRABOUC (*Rev. Méd. Française*, October 1930, p. 707) analyse the results in twelve cases of meningococcal septicaemia, personally treated by them, and considered from the clinical, bacteriological, and therapeutic standpoints. The different forms of treatment employed are grouped as: (1) specific, which includes serotherapy, vaccinotherapy, and autotherapy; and (2) the anti-infective. The second (non-specific) group comprises shock methods, such as chemotherapy with metallic colloids, diamino-methyl-acridine hydrochlorate (gonacrine), and fixation abscess. The authors disclaim any therapeutic discovery, admitting the smallness of the numbers of each group which were tested, but they express a preference for early intraspinal serotherapy. They call attention, however, to the risk of sensitizing thus the meningeal tissues, and emphasize the need for further research.

59 Acriflavine in Undulant Fever

D. S. THURBER (*Canadian Med. Assoc. Journ.*, November, 1930, p. 665) points out that treatment in undulant fever is an urgent problem, since this disease always incapacitates the patient for months and occasionally for years, and is frequently followed by disabling joint pains and arthritis. The use of acriflavine hydrochloride has been commended in Europe and in America. Thurber reports the results in 7 cases following intravenous injections of this salt, and in 7 untreated patients. In 5 of the former cases the fever was arrested within one month; in 2 the fever continued, but at a lower level. In the untreated cases the disease lasted from nine months to two years, and 2 ended fatally. The best results were obtained in

patients treated during the earlier weeks of the disease; chronic arthritis did not develop in such cases. If given after the development of arthritis, acriflavine seemed to have little or no effect on the condition. Tablets containing 0.1 or 0.3 gram of acriflavine hydrochloride should be dissolved in about 20 c.cm. of warm normal saline solution, immediately before use. An ordinary intravenous saline injection is first started to ensure proper entry into the vein, and then the 20 c.cm. of acriflavine solution is added to about 200 c.cm. of warm normal saline solution. The dosage varies according to the size, age, and condition of the patient, and the number of previous injections. The acriflavine must be administered slowly (5 c.cm. per minute) to avoid reactions. Following the injections, a decline, a rise, and a final decline in the fever occur. No severe reactions or harmful effects were noted. Thurber believes that by the intravenous use of acriflavine the course of undulant fever is materially shortened, and the development of an incapacitating arthritis prevented.

60 Vaccine Therapy in Enteric Fever

J. H. CROUCH (*Public Health Rep., Washington*, October 10th, 1930, p. 2429) states that during an epidemic of typhoid fever which occurred in Helena, Montana, in the latter part of 1929, 77 of the 216 cases received T A B vaccine, either just before the onset or during the course of the disease. With a very few exceptions, all received the first dose after the probable date of infection. A comparison of these 77 cases with 105 cases during the same epidemic which did not receive vaccine yielded the following results. (1) 22 patients who were given three doses of vaccine, the first of them before the onset of symptoms, had a definitely milder and shorter attack than any of the others, and no fatal cases occurred. (2) In 17 cases which had only one or two doses, the first of which was given before the symptoms started, the duration of the disease seemed to be shorter, but the severity was not less than in control cases, and there was one death. (3) A group of 21 cases in which the first dose was given shortly after the onset, but before the patient went to bed, showed very little variation from the controls as regards duration and severity, and one fatal case occurred. (4) In a group of 17 cases which received vaccine after going to bed the average duration was a few days less, but the severity of the attack was at least as great as in the control group, and there were two deaths. Crouch concludes that typhoid vaccine is well worth while when given after infection, provided the first dose in administered before the onset and three doses are given. After the onset vaccine is of little or no value.

Dermatology

61 Keratoma Senile and Verruca Senilis

Contrasting these two conditions, J. A. HOOKEY (*Proc. of the Staff Meetings of the Mayo Clinic*, August 27th, 1930, p. 239) states that keratoma senile affects men more often than women, and as a rule occurs after middle age; it is often associated with the changes of senile atrophy. The lesions, which are typical, are usually situated on the face, hands, and forearms, though they occur elsewhere on the body. They begin as small, sharply circumscribed yellow or brown spots, and may remain as such for years. After varying periods many lesions become elevated and covered with adherent, thick, grey scales, presenting on their undersurface projections which fit into minute depressions in the cutis. Usually more than one lesion is present. The lesions may develop into cornu cutaneum. Inflammation, when present, usually indicates a malignant change. Of 31 patients (19 men and 12 women), 8 showed malignant changes. Irregular hyperkeratosis and acanthosis are present in all cases. More important are the individual cell changes; the normal keratinization of the cells is disturbed and dyskeratotic cells are produced. Mitotic cell division is commonly seen; amitotic division also occurs, with the formation of giant cells with multiple clumped nuclei. Another type of giant epithelial cell has a large nucleus with granular chromatin and one or more nucleoli. Oedema of the prickle cell layer develops, but the basal cell layer is usually intact. Pigment in small amount may be found, particularly in the epidermal dendritic cells. The hair follicles and the sebaceous and sweat glands and ducts are normal. The duration of the lesions varied from 3 months to 16 years. Verruca senilis occurs usually on the trunk, especially in the seborrhoeic areas. The lesions are usually multiple and the patients elderly; when fully developed the lesions consist of yellow or brown patches with thin, greasy scales. They begin as small macules, which gradually increase in size and become deeply pigmented; they are often granular in appearance. Inflammation at the base and subjective symptoms are not common. Varying degrees of hyperkeratosis are present. Irregular acanthosis occurs with partial fusion of the rete ridges to form a network in which are found connective tissue islands and cyst-like spaces containing cornified material. Keratinization is not disturbed, and the basal cell layer is intact. The pigment (melanin) is found in and between the epidermal cells and in the chromatophores of the cutis. No malignant changes were detected in 52 cases (28 men, 24 women). The duration of the lesions ranged from 2 to 60 years. The differential diagnosis of these conditions is outlined. Senile changes in the skin, exposure to the sun and wind, and hereditary predisposition are etiological factors in keratoma senile, and malignancy arising in the latter affection is usually of the squamous cell type. Verruca senilis is not a precancerous lesion; it is best classed among the delayed naevi of the epithelial layer. The lesion is essentially an epithelial hyperplasia; under proper stimulus, such as continued irritation, it might possibly become malignant.

62 Acriflavine in Psoriasis Vulgaris

In 1928 OPPENHEIM reported the successful treatment of psoriasis with intravenous injections of trypaflavine combined with ultra-violet irradiation. The dye (acriflavine hydrochloride) was shown to have a strong photosensitizing effect, and was given to increase the action of the actinic rays. S. E. SWEITZER and P. K. ALLEN (*Minnesota Med.*, November, 1930, p. 818) report 20 cases of psoriasis vulgaris treated with intravenous injections of acriflavine. The acid salt was used, as the neutral one proved to be toxic. All but 3 of the cases showed clinical improvement; in 4 the results were striking. In no case in which the eruption disappeared entirely were violet rays used. Moreover, the lesions on the protected areas of the body showed involution as rapidly as those on the hands and arms, which were more exposed to actinic rays. All the patients who improved did so without the rays, though these undoubtedly enhanced the value of the procedure. In the 3 patients who showed no improvement with injections the addition of radiation produced no benefits. The results, therefore, were not entirely due to photosensitization. In treatment the authors dissolve 0.1 gram of the salt in 20 c.cm. of sterile distilled water, and inject this slowly. This dose was given three times weekly, and was always well tolerated. Involution of the lesions followed a definite course; there was a gradual flattening of the papules and a diminution of the scales, leaving a pigmented area. This pigmentation faded slowly, and was the last sign of the dermatitis to disappear.

63 Xanthoma Multiplex with Hypothyroidism

The rarity of the association of xanthomatosis and hyperthyroidism has induced J. F. CHRISTIE, A. LYALL, and T. E. ANDERSON (*Brit. Journ. of Dermatol. and Syph.*, October, 1930, p. 429) to record the case of a woman, aged 44, who was stout, slow, and of placid habit; she was admitted to hospital in October, 1929, on account of multiple xanthomatous deposits on the hands, feet, and arms which had been present for a year. The size of the lesions varied from that of a hazel nut on the palms and soles to that of a split pea elsewhere. The patient had suffered from digestive troubles of an indefinite sort for twenty years, but a general physical examination showed no abnormality.

Examination of the blood showed it to be normal (including a normal sugar tolerance curve) except for a cholesterol content of 426 mg. per 100 c.cm. (normal high limit 200 mg. per 100 c.cm.). A dietary poor in fat was given for a month with no effect on the skin lesions or the blood cholesterol, and the definite lipaemia persisted. Insulin treatment having been previously shown to clear up lipaemia in diabetics, it was given a trial; although a single dose did not cause hypoglycaemia, some faintness followed, and the patient refused further injections. In November the basal metabolic rate was found to be 27 per cent. below normal, and thyroid gland, up to 12 grain doses daily, was given. A rise in the metabolic rate followed, with a fall in the blood cholesterol, but there was no immediate improvement in the skin lesions. There was a subsequent rise in the cholesterol figure, but following discharge of the patient in the following January, on a daily dose of 10 grains of thyroid, it was found to have dropped to 228 mg. per 100 c.cm. in April, 1930, by which time there was a definite clinical improvement in the skin lesions. The authors consider that this case suggests a possible etiological factor in non-diabetic xanthoma.

Obstetrics and Gynaecology

64 Hormones of Gestation

E. PHILIPP (*Zentralbl. f. Gynäk.*, November 1st, 1930, p. 2754), while acknowledging that many gaps still exist in our knowledge of the hormonic activity and relations of the ovum, ovaries, decidua, and hypophysis during early pregnancy, puts forth the following scheme as representing conceptions which are justified at present. Prolan B (Zondek), a hormone produced in the cells of the early chorion (although not there alone), induces development of the corpus luteum of pregnancy. The consequent luteinization in the ovary is associated with copious production of a corpus luteum hormone, which Philipp terms "lutin" or progestin. This hormone causes the development of the decidua in the pre-gravid endometrium, in which further preparation for pregnancy had previously been inhibited by the pre-existing corpus luteum. The decidua regresses in the later months of pregnancy, with diminution in production of prolan B and degeneration of the corpus luteum of pregnancy. Prolan B is found in appreciable amounts in the placenta in man and apes only, and almost disappears towards term. It is admitted that prolan B is not a placental product only, but is also formed in the anterior lobe of the pituitary body, as shown in the work of Zondek and Aschheim. In Philipp's experiments now described the production of pre-gravid endometrial hypertrophy in castrated rabbits is taken as a test sign of corpus luteum hormone, a recommendation made by Corner, Allen, and Clauberg. Transplantation experiments have indicated that this hormone is absent from the placenta. The association of prolan B, originating in the chorion, with lutein formation in the pregnancy corpus luteum, gives an explanation of the frequently reported coexistence of hydatidiform mole (with chorionic overgrowth) and corpus luteum cysts of the ovary.

65 Pelvic Sympathectomy

BINET (*Bull. Soc. Obstét. et de Gynécol. de Paris*, October, 1930, p. 590) states that in thirty-two out of thirty-three trials he has found it easy to divide the pelvic sympathetic nerves. Instead of isolating and dividing the presacral nerve (as described by Cotte) he removes the whole of the cellular tissue, with the included sympathetic fibres, lying between the common iliac arteries. No cases of uterine carcinoma were included, but most of the patients suffered from intractable pain. In nearly all of them uterine haemorrhage occurred from the second to the fifth day after operation. Relief of pain was usually secured among those suffering from dysmenorrhoea or from dyspareunia. According to A. HAMANT (ibid., p. 593), resection of the presacral nerve is a comparatively simple operation which is usually effective. Metrostaxis a few days afterwards is constant, and is to be regarded as a sign that the sympathetic fibres have really been divided. In dysmenorrhoea the results are said to be very good. In certain cases other surgical measures are carried out at the operation—for example, appendicectomy, division of adhesions, and uterofixation. In other cases, of which an example is cited, presacral resection alone is effective. When there is carcinoma of the uterus Hamant has obtained much relief from pain by combining resection of the presacral nerve with periarterial sympathectomy. V. RICHE and G. FAYOT (ibid., p. 575) report eight cases of resection of the presacral nerve. Their results were: in two cases of cancer of the uterus, no improvement; in a case of essential pelvic neuralgia, some amelioration; in five cases of dysmenorrhoea, cure in two, relief in two, and no change in one.

66 Gestation in Generalized Neurofibromatosis

M. V. MOREIRA (*Gynécol. et Obstét.*, September, 1930, p. 229) describes a case showing the effects of repeated pregnancies on a woman with von Recklinghausen's disease. The patient was 28 when first seen by him, and no other member of the family had been similarly affected. She had given birth previously to two children; both pregnancies, confinements, and puerperia had been normal. At the age of 10 years a small subcutaneous tumour had appeared on the face; it was painless, and grew only to the size of a hazel nut. This constituted the sole manifestation of the malady for twelve years. During the three months after her first confinement pigmentation appeared, the first being a patch on the arm with, subsequently, other patches on the back and front of the trunk. These persisted until her second pregnancy five years later. During this pregnancy the pigmentation again increased, but regressed after the confinement. During the third month of the third pregnancy the woman noted the appearance of cutaneous tumours on the unpigmented skin areas, and also an extension of the existing pigmentation, with a number of asymmetrically placed bronze patches of variable size. There were many small tumours of different sizes, most being distributed over the back. The patient eventually gave birth to healthy twins, the confinement and puerperium being normal. The spots of pigmentation on the face gradually diminished, but there was no modification of the tumours. The patient presented no signs of intoxication, of infection, or of nervous involvement, apart from a certain amount of apathy. Moreira remarks that since pregnancy augmented the disease, the possibility of the ductless glands being concerned must be considered. The ovaries appeared to function normally, as the pregnancies were normal. The prognosis would have to be reserved because the pelvic basin might not remain normal as at present. Although the patient had been affected for eighteen years, no cachexia was observable. It appears that if the influence of pregnancy on the evolution of the malady was incontestable, the malady itself had no influence on the function of reproduction.

67 Extrauterine Pregnancy

After briefly discussing the etiology, pathogenesis, diagnosis, and treatment of extrauterine pregnancy, J. C. MASSON (*Minnesota Med.*, November, 1930, p. 822) records the antecedent and subsequent histories in 471 such cases. These occurred at the Mayo Clinic during a period of twenty-five years. The youngest patient was aged 15 and the oldest 52, the average age being nearly 32. In 20 cases the ovum was still developing in the tube when the operation was performed. There were 7 cases of abdominal pregnancy, in 3 of which the pregnancy had reached full term. Lithopedions were found in 10 cases. Three cases of bilateral tubal pregnancy occurred, and one of twin pregnancy in one tube. Cases of associated intra- and extrauterine pregnancy were not found. The average length of married life was almost nine years. Masson agrees that previous sterility and abnormal pregnancy are important etiological factors: 109 patients (23.14 per cent.) did not give a history of previous uterine pregnancy, and 53 gave one of only miscarriages or ectopic pregnancies. Previous pelvic disease was present in 221 cases (46.9 per cent.). The average length of time from the last menses to the

onset of symptoms was about 10½ weeks. Pain was the chief complaint in 278 patients (62.32 per cent.), and vaginal bleeding in 160 (36.03 per cent.). The following average findings are given: blood pressure, 118.56 systolic and 82.61 diastolic; pulse 90.5; temperature 98.84° F.; haemoglobin 66.41 per cent.; and the leucocyte count 9,080. Six deaths followed operation, an operative mortality of 1.27 per cent. Two other patients, admitted *in extremis*, died from haemorrhage before being operated on. In 2 cases early tubal abortion was found accidentally at necropsy; one patient had died from acute nephritis, the other from oesophageal cancer. In a previous paper the subsequent pregnancies in 198 cases of ectopic gestation were reported; in 87 of these (44 per cent.) pregnancy again occurred. The total number of pregnancies was 162, 111 of which were normal. In 34 (20 per cent. of the 162) the pregnancies were intrauterine, but terminated in miscarriages. Eighteen pregnancies (less than 12 per cent. of the 162) were extrauterine. Masson believes, therefore, that bilateral salpingectomy is not justifiable for extrauterine pregnancy if the opposite tube is apparently fairly normal.

Pathology

68 Insulin and Epinephrine in Fasting Children

L. SALOMONSEN (*Amer. Journ. Dis. Child.*, October, 1930, p. 718) carried out eight experiments on healthy, fasting children, from 1 to 3 years old, with small doses of insulin. Hunger itself brings about a rapid fall in blood sugar and considerable ketonaemia in small children. The insulin was administered when the acetone curve was rising, and the blood sugar curve was either falling or had reached its minimum value. The insulin produced a further fall in the already low blood sugar content, while the blood acetone curve was unquestionably inhibited. However, the lower the blood sugar content was at the beginning of the experiment, the less marked was this effect; it appeared later and was less pronounced. The content of fatty acids in the blood plasma was shown, in two experiments, to fall if the blood acetone fell, and to remain unaltered if the acetone curve continued to rise after the injection of insulin. Seven experiments were performed on these children with epinephrine, injected subcutaneously in 0.1 per cent. solution. In all the experiments the blood sugar showed an immediate rise, of considerable extent and of short duration, reaching the maximum one or two hours after the injection. In all cases there occurred a distinct and temporary rise in the acetonaemia, the peak being attained an hour after that of the blood sugar. The lower the content of blood sugar the greater and more rapid was the rise in acetonaemia. In five out of six experiments a distinct rise in the quantity of fatty acids in the blood plasma occurred in one hour, and in the sixth experiment two hours, after the injection of epinephrine.

69 Experimental Transmission of Colds by a Filterable Agent

A. R. DOCHEZ, G. S. SHIBLEY, and KATHERINE C. MILLS (*Journ. Exper. Med.*, November, 1930, p. 701) have succeeded in transmitting the common cold to chimpanzees and human volunteers by means of filtered nasal washings from patients suffering from colds. A colony of chimpanzees was established under the most careful conditions of quarantine. After a period of preliminary observation, during which their nasal and nasopharyngeal flora was studied, they were submitted to experimental testing. Nasal washings were obtained from subjects with colds of not more than twenty-four hours' duration; these were passed through a Berkefeld V candle, and 1 c.cm. of the filtrate was injected into each nostril of the chimpanzee; the injections were repeated a few hours later. In positive experiments the first symptoms of a cold developed thirty-six to forty-eight hours later; the clinical picture that resulted was similar to that of a cold in a child. Examination of the nasal flora showed that with the onset of the cold a definite alteration occurred, characterized chiefly by the appearance of pneumococci in the nose and their rapid development to become the predominating organisms, together with a conspicuous increase in the numbers of Pfeiffer's bacillus. Of a total of 16 chimpanzees experimentally inoculated, 7 developed definite colds. Similar experiments in human volunteers kept in strict isolation resulted in 4 successful transmissions out of 9 attempts. It is noteworthy that no change in the nasal flora of the human volunteers was met with corresponding to that seen in the chimpanzees. The filtrates used generally contained anaerobic filter-passing organisms of the type described by Olitsky and Gates, but the authors do not regard these as having any etiological significance, because they were also present in control filtrates from healthy persons which gave negative results in chimpanzees, because two experiments made with pure cultures of these organisms failed to give rise to colds, and because some filtrates which proved infective were free from these organisms. The authors conclude that certain types of cold are caused by an ultra-microscopic filterable virus.

70 The Complement-Fixation Test in Gonorrhoea

R. FÖRSTER (*Münch. med. Woch.*, October 31st, 1930, p. 1877), from a study of 1,350 serums, concludes that the complement-fixation reaction for gonorrhoea, if correctly performed (by Cohn's method) and interpreted, is of very considerable value in diagnosis and prognosis, and in controlling treatment. His main conclusions are as follows. In the early stages of the disease a negative reaction has no significance. A strongly positive reaction is evidence of present or recent gonorrhoea, a very useful point in the diagnosis of arthritic and gynaecological diseases. The reaction is only of diagnostic significance if specific vaccine treatment has not been employed. If a strongly positive reaction continues, it is evidence of latent infection remaining which may give trouble later on. A positive reaction becoming gradually negative during treatment is one sign of cure. A positive reaction is ordinarily to be considered as an indication for vaccine treatment.

71 Bacterially Produced Nervous Tissue Lesions

D. ORR (*Journ. Neurol. and Psychopathol.*, October, 1930, p. 97) states that he has shown that in lymphogenous infection of a peripheral nerve the lesion is interstitial in character, and the reaction is active at the site of the infection focus, becoming proportionately subacute and less active in the more remote portions of nerve. Experiments on seven rabbits, in which bacteria were introduced into the general circulation, are now recorded. These indicated that the resultant lesion in the nervous structures was degenerative or destructive, and involved definite cerebral anatomical sites. Necrotic areas in the fornix and cornu Ammonis were adopted as a criterion of the lesion. Definite necrotic areas were found in four of the seven brains examined; in the other three there was marked oedema, in spite of which coagulation necrosis was present. No haemorrhage was detected at or near the necrotic foci. In the cortex there were no gross lesions similar to the ischaemic softenings in the fornix and cornu Ammonis, but the nerve cells exhibited varying degrees of coagulation necrosis, which was not distributed uniformly throughout the cortex. In the superior and lateral areas of the pallidum the morbid changes varied in intensity, and all the cortical cell laminae were not involved in the necrotic change. The whole depth of the grey matter did not show nerve-cell necrosis. All the outer layers as far inwards as the ganglionic lamina were affected, but rarely the deepest or multiform layer. Granule and pyramidal cells were affected indescriminately. The pathogenesis is discussed, and the opinions of various authorities are cited. On this point the relation between the short cortical and long subcortical arterioles is important. Orr suggests that the localization of the lesions in the fornix and cornu Ammonis indicates that the vessels in these situations are terminal, while in the cortex, where the lesions are less marked and more diffuse, the absence of definite ischaemic lesions is due to the richness of the looped system of capillary supply.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

72 Treatment of Non-tuberculous Pulmonary Conditions

J. ALEXANDER and W. W. BUCKINGHAM (*Journ. Amer. Med. Assoc.*, November 15th, 1930, p. 1478) discuss the treatment of non-suppurative pneumonitis, abscess, and bronchiectasis. Suppurative pneumonitis not infrequently complicates operations, pneumonia, and infections of the mouth and sinuses. The lesion of the earliest stage is usually a purulent infiltration of the alveoli and interstitial tissue of the lung, with an associated infection of the bronchioles and small bronchi. The suppurative infiltration may be excavated by necrosis to become an abscess or multiple abscesses, or even a gangrenous extension; the condition may also proceed to bronchiectasis. The location of the principal lesions in the parenchyma determines abscess formation, and in the bronchial walls a bronchiectasis; it is important to prevent the sequels by curing the initial lesions. In the early stages of suppurative pneumonitis medical treatment is best, and often cures. If it fails, surgery frequently offers chances for cure if an operation is not unduly delayed. The most useful medical and surgical methods are: sanatorium regimen; frequent postural drainage; elimination of mouth and sinus infection; intravenous injections of neoarsphenamine; bronchoscopic removal of foreign bodies and secretions; artificial pneumothorax; temporary or permanent interruption of one phrenic nerve; extrapleural pneumolysis and thoracoplasty; drainage of an abscess; and lobectomy. The selection of the best procedure is an individual consideration; the simplest measure likely to suit the particular patient should first be chosen. The authors enumerate the succession of methods which they have found of value in the various types of suppurative pneumonitis.

73 Idiopathic Pyrexias

J. TROISIER (*Ann. de Méd.*, November, 1930, p. 480) mentions various conditions in which an unaccountable slightly elevated temperature occurs. Continued fever is often noted in children following cured infections of the rhinopharynx and enterocolitis, and in nervous children. The temperature is also sometimes raised in fatigue, and in women for some days before the menstrual periods. A case is recorded of a man, aged 31, who had been under observation for many years and who had always shown a temperature higher than that usually regarded as normal. His average morning rectal temperature was 100.5° F., and the evening rectal one nearly 101° F.; the axillary temperature was three-tenths of a degree lower. The man complained only of slight lumbago, being otherwise apparently healthy, and there was no evidence of nervous disequilibrium such as hysteria, or of endocrine disturbance. He stated that he has always had a high temperature, and that his father also had a habitual temperature of 104° F. Troisier considers this a case of congenital high temperature, transmissible by direct heredity from father to son, its pathogenesis being quite hypothetical. He points out that the homothermal mammals (dogs, rabbits, guinea-pigs, oxen, etc.) have a normal temperature of about 102° F., and that the horse and the chimpanzee have the normal human temperature of 98.4° F. The author adds that in cases of prolonged fever the possibility of a congenital high temperature being the cause should be considered.

74 Endocrine Factors in Migraine

E. F. HARTUNG (*Med. Journ. and Record*, November 19th, 1930, p. 497) considers migraine to be a manifestation of pituitary hypofunction. While in ordinary circumstances the pituitary gland is adequate, it suddenly enlarges with the call for increased activity under physiological or emotional stress and produces migraine. The condition is associated with the onset of puberty or occurs after the climacteric has passed, at which times the activity of the endocrine glands is increasing or subsiding. Acting upon this assumption, it has been clinically demonstrated that an attack of migraine may be abated by the hypodermic administration of adrenaline or of pituitary substance orally. In an experience of fifty cases hypodermic injections of anterior and posterior lobe pituitary or whole gland extract were given twice a week for the first month and thereafter once a week as long as required. In oral administration one-twentieth to one-half grain doses of the whole powdered gland were administered, such relatively small doses being necessitated by the fact that larger doses occasionally cause headache even in normal persons. Failure to procure relief occurred in only three instances; twelve patients were markedly improved, and the attacks in the remaining thirty-four were greatly reduced in frequency and severity. Hartung remarks that gastro-intestinal irregularities, focal infections, and refractive errors must be corrected, and a low carbohydrate diet be enforced, while the patient is kept within his constitutionally low fatigue threshold. Although the numbers thus treated are too few to allow of a final conclusion being drawn, the author considers that endocrine therapy offers the most encouraging results in the treatment of migraine.

75 Benign Lymphocytic Meningitis

According to V. DAUNA (*Thèse de Paris*, 1930, No. 320), who records 22 cases in patients aged from 4 to 45 years, all of whom made a complete recovery, this condition is characterized by an infectious state, accompanied by a meningeal syndrome, in which lumbar puncture shows the presence of an abundant lymphocytosis. The affection may occur in either a sporadic or an epidemic form. In a certain number of cases benign lymphocytic meningitis is due to acute poliomyelitis, epidemic encephalitis, or well-defined diseases such as herpes, mumps, and spirochaetal jaundice, but in some cases the etiology remains obscure. The diagnosis is extremely difficult, especially from tuberculous meningitis, so that in any case of lymphocytic meningitis resembling tuberculous meningitis, but not definitely proved to be so, the prognosis should be guarded, and the patient's condition should not be regarded as hopeless.

Surgery

76 Treatment of Skin Cancer

J. J. ELLER and E. C. FOX (*New York State Journ. of Med.*, November 15th, 1930, p. 1344) urge the importance of early diagnosis and judicious treatment of dermatoses that may become cancerous. Of the many skin diseases which may terminate in malignant neoplasm, syphilis, leucoplakia, radio-dermatitis, senile and seborrhoeic keratoses, kraurosis vulvae, lupus, and tuberculides have to be suspected, and a preliminary biopsy (except in melanoma) is advised in order to determine the degree of malignancy and the approximate radio-sensitivity or radio-resistance. Many chronic skin diseases in patients over 40 years old are basal cell epitheliomata; they develop frequently on a seborrhoeic keratosis, differ greatly in appearance, and may occur in any region, but approximately 80 per cent. are situate about the head and neck. The majority of early cases are curable; failures occurring in chronic cases exhibit invasion of bone or cartilage. The authors used unfiltered *x* rays for the majority of their basal cell epitheliomata. Lesions involving the aural or nasal cartilages were destroyed completely by electrocoagulation or excised with the high-frequency knife,

followed by unfiltered *x* rays or an equivalent local application of radium or radon. In prickle-cell epithelioma the tumours grow more rapidly and metastases occur earlier; they are usually more resistant to radiotherapy. Early prickle-cell tumours of the trunk can be treated successfully by radiation alone, but it is often advisable to excise the lesion or to employ electro-coagulation, followed by radium or radon. Electro-coagulation of tumours in cartilaginous areas (which are very resistant to irradiation) is advised, followed by irradiation. In lip epitheliomata the papillary type responds most rapidly to radiotherapy, while the infiltrating form is most dangerous on account of early metastasis. Penile epithelioma constitutes 1 to 3 per cent. of all cases in men; basal squamous-cell epithelioma is more malignant than the foregoing and is more resistant to radiotherapy. The prickle-cell lesion is more common in penile cases and responds well to radiotherapy in early cases. When Buck's fascia is involved the lesions react less readily, and electrothermic amputation may be required. Melanocarcinoma and melanosarcoma are both extremely malignant and require extensive excision with the high-frequency knife. In Paget's disease of the nipple, ablation of the breast, followed by irradiation, is advised. Lymphosarcoma of the skin responds well to irradiation, but in intensely hard chronic tumours surgical treatment should precede it. In early sarcoma the best results are obtained by a combination of radiotherapy and surgery; the dose required is similar to that given in prickle-cell epitheliomata. More resistant tumours require surgical excision and subsequent radiotherapy.

77 Traumatic Perforation of the Small Intestine without External Injury

S. POLIZZI (*Rinascenza Medica*, December 1st, 1930, p. 575) reports the case of a man who was kicked in the lower right quadrant of the abdomen about three hours after a meal. A few hours later he vomited food but no blood. During the night the pain increased, the vomiting became bilious, and the temperature rose. When admitted to hospital he was obviously very ill and his pulse was 120. There was abdominal rigidity and tenderness on palpation over the right lower quadrant, but no sign of external injury. Laparotomy was immediately performed. Although the appendix was unhealthy, it did not seem sufficiently so to account for the peritonitis, and there was no perforation. Appendicectomy was performed, and on further search a perforation was found in the small intestine about 30 cm. from the ileo-caecal valve. The perforation was sewn up and the patient made a good recovery. Polizzi suggests that the perforation was probably caused by the intestine having been squeezed against the hard vertebral column.

78 Operations on Diabetic Patients

L. R. GROTE and M. FLESCH-THEBESIUS (*Zentralbl. f. Chir.*, December 5th, 1930, p. 3026) comment on the great assistance brought by insulin to the surgical treatment of diabetic patients, and report three cases in detail by way of illustration. In the first case a woman, aged 47, who had had diabetes for twenty-four years, was successfuly submitted to an operation for the removal of a large uterine fibromyoma which had resisted irradiation treatment. Vaginal panhysterectomy under ether anaesthesia was performed, and the patient made an excellent recovery. The second patient was a man, aged 30, who was operated upon for chronic appendicitis, and the third patient, a woman aged 52, was suffering from severe furunculosis, the prognosis being very grave. In spite of there being no fewer than twenty abscesses, careful insulin treatment enabled a complete cure to be obtained by surgical intervention. The authors mention other cases in support of their contention that it is possible to control the metabolism appropriately before and after the surgical treatment of diabetic patients. For the operation, chloroform anaesthesia is inadmissible; lumbar anaesthesia is popular in America, and the present authors obtained good results from the intravenous injection of pernocton.

Therapeutics

79 Rational Treatment in Arterial Hypertension

S. WEISS and L. B. ELLIS (*Journ. Amer. Med. Assoc.*, September 20th, 1930, p. 846) maintain that no satisfactory drug treatment has yet been evolved for arterial hypertension. Experimental studies have shown that this condition, which may be functional at the outset, is the physiological and necessary response to decreased permeability of the arteriolar and capillary systems; they agree that the etiology is obscure, and in particular hold that there is insufficient proof of its relation to any local circulatory disturbance in the kidneys. Graphic proof of the transient nature of nitrite action is shown, and the danger of cerebral and other catastrophes resulting from sudden pressure reduction is mentioned. The most hopeful course is to induce the hypertensive patient to lead a rational life. All excesses of diet and exertion are naturally to be avoided; a proper amount of ordinary sleep is essential, and an additional period of afternoon rest is highly desirable. The reduction of all protein intake to 10 per cent. of the total calorie value of food taken daily is advised. Tobacco is not contraindicated, except in cases where its use is found to cause a definite increase in tension. A daily action of the bowels without straining is important. The use of sedatives of the barbituric acid group has been found of great value as an adjunct to general management, especially in the case of highly strung and excitable persons. Warm baths at not less than 34° C. are helpful. It is, above all, essential to consider the temperament of each patient, and to avoid the creation of " blood pressure phobia " by too great insistence on the condition. Experience has revealed that with the use of general measures, with or without accessory drugs, a proportion of the patients will improve as regards their symptoms and the recorded pressures; others will show great improvement generally, and be enabled to lead useful and comparatively active lives, without any measurable change in their tension. Some patients will not manifest any objective or subjective change, and will inevitably progress unfavourably. The tendency of certain patients to spontaneous improvement must not be forgotten. In all cases the eradication of obvious focal sepsis is indicated, not because it has any proved association with hypertension, but because, like syphilis and other infectious processes, it predisposes to vascular sclerosis.

80 The Haemostatic Action of Congo Red

During the course of Wedekind's researches on carbon and Congo red in pulmonary tuberculosis, the haemostatic properties of the latter substance were accidentally discovered. T. WEDEKIND, J. BECKER, and B. WIENERT (*Münch. med. Woch.*, November 28th, 1930, p. 2049) have therefore explored the clinical use of Congo red as a haemostatic in various cases of haemorrhage. A sterile 10 per cent. solution of Congo red (Grübler) was used, 5 to 10 c.cm. being injected intravenously, the injection being repeated if necessary; no untoward effects were ever observed although 50 conditions were treated, including haemoptysis, bleeding from teeth sockets, menorrhagia, and haematuria, and in the great majority of these the haemorrhage was arrested in from half an hour to six hours. Foreign bodies, especially electro-negative colloidal suspensions, have been shown to be held up in the reticulo-endothelial system, and to cause there an increase of activity which shows itself by various changes in the chemical and physical composition of the circulating blood, including an increase of fibrinogen and blood platelets. This is probably the explanation of the haemostatic action of Congo red, since in most of the cases which did well the coagulation time was abnormally long before the injection, and was reduced to normal by the treatment, the platelet count increasing at the same time. This was particularly the case in haemoptysis from pulmonary tuberculosis, where a prolonged coagulation time appears to be a common finding.

81 Vaccine Treatment of Typhoid Osteo-arthritis

M. LAURENT (*Thèse de Paris*, 1930, No. 266), who records 8 illustrative cases in patients aged from 18 months to 27 years, states that osteo-arthritis, although a rare complication, is always likely to occur in enteric fever, especially in the child. The onset is often insidious and the symptoms ill marked. Timely treatment, however, may diminish such grave complications as dislocation (which is particularly frequent in children) and ankylosis. Vaccine therapy should be applied as early as possible. It is most effective during the onset of the lesions, and may prevent suppuration in a primary serous arthritis. In cases where Widal's test has not been used a polyvalent T A B vaccine should be injected. The doses of the vaccine should be progressively increased so as to produce a general reaction. Laurent states that there is no contra-indication to the vaccine treatment of typhoid osteo-arthritis, and it should be associated with immobilization.

Disease in Childhood

82 Urticaria in Early Infancy

ANNA PINELLI (*La Pediatria*, October 15th, 1930, p. 1134) publishes a synthetic review of recent knowledge in regard to infantile urticaria. The family history of these patients often shows a skin weakness on similar lines, including a sensitiveness to cow's milk or to eggs, and especially to the white of the egg. Various hypotheses have been suggested to explain how these dietetic errors produce urticaria. It may be due to some special susceptibility of the skin, excited by some irritant passing through the nervous or vascular system and setting up congestion, and exudation of serum in the derma. Sometimes the cause is specific, as in the case of cow's milk and eggs or other food; in other cases no food error can be traced. Probably the liver plays an important part in the formation of the substance or substances which set up urticaria. Pinelli describes six main types: urticaria rubra, porcellana (with pale raised blotches), bullosa, pigmentosa, haemorrhagica, and acute circumscribed urticaria chiefly affecting the eyelids. In treatment the usual antipruritic lotions and drugs are mentioned, and stress is laid on the need for caution, particularly in introducing too drastic alterations of diet. Good results sometimes follow desensitization by means of gradually increasing small doses of the incriminated article of food. The administration of peptone, specific or non-specific, has been much recommended.

83 Artificial Feeding in Infants

H. P. WRIGHT and A. K. GEDDES (*Canadian Med. Assoc., Journ.*, October, 1930, p. 537) believe that, since the value of the accessory food factors in infant feeding has been appreciated, the relative unimportance of the actual food factors has been learned, provided always that certain minimum requirements are complied with and that sufficient calories are supplied. In the autumn of 1928 it was decided, at the Montreal Foundling and Baby Hospital, to submit a number of infants to selective feedings—that is, to feed them according to their appetite with the following preparation: lactic acid whole milk 20 oz., and corn syrup (50 per cent.) 2 oz. The results were uniformly successful. The calorie value of each ounce of this milk is between 23 and 24 calories, or slightly higher than that of breast milk; the carbohydrates and proteins are both in greater percentages than in breast milk. All the babies were fed for twenty minutes every four hours (five feedings in the 24 hours). Each infant under the age of 3 months was held while being fed. When any of them began to take 32 oz. of this mixture in the 24 hours, cereals were offered twice daily and vegetable broth once, and the number of feedings were reduced to four. When two platefuls of cereal were taken, the child was as a rule fed only three times a day. Infants 4 months old were usually eating cereal with avidity, and at the age of 6 months were receiving only four feedings in the 24 hours. Boiled water was offered to all infants. Cod-liver oil, rapidly increased to one teaspoonful twice daily, was administered in all cases. Orange juice was also given and quickly augmented to one tablespoonful a day. The authors consider that it is perfectly safe to feed normal babies during the first year with this mixture according to the appetite, and that some such simplified feeding is safer than a scheme which requires modification at regular intervals. Eleven case reports are appended as representative of those of 20 infants who received the feeding described. Only two failed to make satisfactory progress; one of these had congenital syphilis, and the other a cerebral haemorrhage following birth injury.

84 Diagnosis of Pulmonary Tuberculosis in the Infant

G. RUELLE (*Bruxelles-Médical*, October 26th, 1930, p. 1417) bases his diagnosis in suspected pulmonary tuberculosis in infants on the sum of the information obtained from the family history, clinical examination, reaction to tuberculin, and bacteriological and radiological investigations. He remarks that members of the household and near relatives should all be examined; the more intimate the contact the more likely is the infection. Transplacental infection is stated to be quite exceptional. The presence of adenitis, caries of the bone, or gummata indicates the necessity for very careful percussion and auscultation of the lungs. Ruelle holds that a positive Pirquet reaction indicates the presence of living tubercle bacilli in the infant. Since there may be a " silent " incubation period of two or three months, it is necessary to repeat the test, if negative, in suspected cases. If the skin reaction is positive the author advocates injection into guinea-pigs of material swabbed from the throat or antiforminized portions of the stools. Several animals should be inoculated on two to eight occasions, and daily or every other day. The animals are killed after a minimum of thirty days, and only those are considered tuberculous from which reinoculable tubercle bacilli are recovered. Tubercle bacilli may also be found on direct examination of the centrifugalized stomach contents, or, very rarely, the stools. Tracheo-bronchial adenitis, while not necessarily tuberculous, should always be regarded with great suspicion. *X*-ray shadows may be present in the right or left hila; they may be central or may involve the parenchyma of the lungs. Splenopneumonia or Grancher's disease, an acute infection, usually of the left lung, simulating a pleurisy with moderate effusion, is said to give a characteristic diffuse *x*-ray shadow, and to be generally tuberculous in origin. In miliary tuberculosis scattered granular shadows are apparent in the lungs. Cavity formation, not very common, must be confirmed radiologically.

Obstetrics and Gynaecology

85 Tubal Inflation and Salpingography

According to J. NOVAK (*Zentralbl. f. Gynäk.*, November 29th, 1930, p. 3013) injection of the tubes with lipiodol or similar preparations for radiological purposes is far from being without danger; nevertheless, increasing numbers of foreign patients seeking treatment in Vienna for sterility bring with them radiograms of their Fallopian tubes. Novak describes the post-mortem findings in a patient who died from typhoid fever two months after salpingography, and three weeks after salpingostomy; recent inflammatory disease in the reclosed tubes and in the pelvic peritoneum was present. He cites a case in which, as shown radiographically, the injected oil was still present in the tube after two years. Novak no longer advises salpingography as a preliminary to operative treatment of tubal sterility, and save in very exceptional cases is content with tubal inflation. This is performed shortly after menstruation, but not until gonorrhoea has been excluded by examination of the cervical secretion and/or complement deviation, and (when the adnexa are enlarged) not until there is a normal leucocyte count and erythrocyte sedimentation rate. In none of the author's patients have untoward results followed the use of Rubin's method, and in one case only in which tubal occlusion was demonstrated did pregnancy occur later.

86 Post-operative Obstetric Embolus

J. O. POLAK and V. MAZZOLA (*Amer. Journ. of Obstet. and Gynecol.*, October, 1930, p. 529) discuss the incidence, cause, and prevention of post-operative obstetric embolus. The total incidence of thrombosis and embolism in 12,000 gynaecological and obstetrical cases was found to be 0.5 per cent. The number of cases of thrombosis in the obstetric group was double the number in the gynaecological group. Embolism predominated after gynaecological operations, thrombosis in obstetric deliveries. The authors state that 50 per cent. of all post-operative pulmonary emboli have their source in thrombi of the femoral and iliac veins. All clinical observers admit that pulmonary embolism is more common in pelvic operations, and in women aged 40 or more who are over weight and inactive. Relatively low blood pressure is frequently associated also, and some degree of post-operative infection, however mild. In this series of cases the mortality in gynaecological cases resulting from embolism is nearly twice as great as that resulting from embolism in the obstetric patient. Morbidity was present in 100 per cent. of cases. The conclusions reached by the authors are that venous stasis, the physiological blood changes following operation trauma, and infection are the chief factors which predispose to thrombosis and embolism. As a prophylactic measure they advise a more thorough pre-operative study of the patient, with individual treatment of cases of hypotension, low basal metabolism, leucopenia, anaemia, or hypertension. To increase metabolic activity and improve the circulation of blood in the lower extremities, the employment of passive movements and the administration of thyroid extract before and after operation are advocated.

87 Treatment of the Fibrocystic Ovary

C.-A. CASTAÑO and A. S. INTROZZI (*Gynécol. et Obstét.*, October, 1930, p. 301) in observations at operations have invariably found the fibrocystic ovary to be combined with pelvic varicocele. They believe that alteration in the pelvic sympathetic nerves plays an important part in the etiology of both conditions. In six cases of fibrocystic ovarian disease they have had excellent symptomatic results from ligature and section of all the vascular and nervous elements (the ovarian artery included) lying within the ileo-ovarian (suspensory) ligament near the hilum. The utility of Cotte's resection of the presacral nerve in similar cases is admitted, but the technique of the author's operation is simpler.

Pathology

88 Intradermal Reactions in Early and Late Allergic Syphilis

DUJARDIN and WISER (*Bruxelles-Médical*, August 17th, 1930, p. 1133) consider that the positive reactions to the intradermal inoculation with luetin—a substance obtained by maceration of syphilomata rich in the treponema obtained from rabbits—which occur in certain well-defined cases, have a definite clinical significance, though a positive result in infected subjects is much less general than is the case with tuberculin. A positive reaction is most commonly obtained in tertiary cases, but also in some earlier stages, especially where nervous lesions have followed rapidly on a primary stage insufficiently treated with arsenobenzol. The sequence of events points to the provocation of an early tertiary stage. The same reaction may be obtained in some cases where treatment has been really vigorous, and in certain congenital cases having special sensitivity to the toxins of the treponema. Luetin, according to the authors, thus produces the typical reaction of syphilitic allergy. As already recognized by Noguchi, this allergic reaction is not strictly specific, similar ones being obtainable by the use of various proteins. The present authors suggest that syphilis evolves through non-allergic primary and secondary stages to an allergic tertiary stage which may not be reached for some years, or the disease may remain indefinitely anallergic, the allergic stage being eventually provoked under the influence of treatment, as, for example, by malaria therapy in general paralysis. In a series of 113 cases where the test was tried, negative results were obtained in 23 primary cases (100 per cent.), 14 out of 19 generalized secondary, 7 of 10 localized secondary, 9 of 19 latent cases, and 3 out of 10 tertiary cases where lesions had been present but had been inactive for some years. Severe reactions occurred in three cases where the tertiary manifestations were very recent, and also in another case where a tertiary lesion appeared in the nose three months after infection, exemplifying the highly allergic state of the skin. The authors remark that the occurrence of positive reactions in latent cases is hard to explain; probably tertiary signs may be expected to appear later. They conclude that the development of allergy is promoted by the massive destruction of treponemata, as in recent syphilis when the action of arsenic is as potent as that of fever in general paralysis, and by a maximum concentration of treponemata in the organism, as at the "critical stage" for treatment when the secondary septicaemia occurs, and in general paralysis, where there is frequently a massive concentration of treponemata in the nervous tissues.

89 Streptococci in Infectious (Atrophic) Arthritis and Rheumatic Fever

R. N. NYE and E. A. WAXELBAUM (*Journ. Exper. Med.*, December, 1930, p. 885) have undertaken a series of experiments to determine whether streptococci are frequently present in rheumatic infections. In their first series of cases blood cultures were taken—using the method of Cecil, Nicholls, and Stainsby—from 10 cases of chronic arthritis, 11 cases of acute infectious arthritis, and 12 cases of rheumatic fever; of these, only one culture proved positive, a diphtheroid organism being recovered. Of 35 control cases, 6 positives were obtained, staphylococci, diphtheroids, Gram-positive cocci, and Gram-positive bacilli being recovered. In their second series of cases 5 patients with chronic infectious arthritis and 3 with rheumatic fever were examined, cultures being taken from the blood of seven, the synovial fluid of six, and lymph glands or subcutaneous nodules of four. Altogether positive cultures were obtained from six patients, the organisms recovered being Gram-positive bacilli and diplococci, Gram-negative bacilli, diphtheroids, staphylococci, non-haemolytic streptococci, and *Str. viridans*. In the total series of 41 rheumatic cases *Str. viridans* was obtained only once—from the blood of a patient with chronic infectious arthritis. The diversity of organisms recovered, the fact that duplicate tubes inoculated with the same material were never both positive, and the fact that more positive cultures were obtained from the control than from the experimental series of cases, lead the authors to believe that the positive results were probably due to contamination. The streptococcal origin of rheumatic conditions therefore receives no support from their work.

90 Cholesterinaemia in Diphtheria

J. DONATO (*Thèse de Paris*, 1930, No. 323), who records 44 illustrative cases in children aged from 2 to 14 years, states that while in an ordinary attack of diphtheria the glucose and cholesterin content of the serum is little affected, in severe forms there is a considerable diminution of glycaemia and cholesterinaemia. This diminution appears to have a direct relation to the intensity of the intoxication, so that the estimation of the glucose and cholesterin content of the serum is of value in the diagnosis and prognosis of suprarenal insufficiency, which is the chief cause of malignancy in diphtheria. When recovery ensues there is always a reaction in the form of hypercholesterinaemia, which appears to be closely connected with the progress of immunization and the formation of antibodies. The administration of total suprarenal extract seems to have a favourable effect on the curve of glycaemia and cholesterinaemia, and consequently on the course of the disease.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

91 The Tuberculin Reaction in the First Three Years of Life

S. MONRAD (*Ugeskrift for Laeger*, November 6th, 1930, p. 1046) published in 1914 an account of tuberculin tests performed on about 3,400 children, and concluded that during the first year of life a positive reaction is always associated with active tuberculosis; in the second year it is so in six out of seven cases, and between the ages of 2 and 5 in two out of three cases. Since these investigations were undertaken so long ago as the period 1907–14, the author has thought it worth while investigating whether there has been any change in this respect, and he has therefore made a similar study of cases for the period 1919–30. Of 52 infants under the age of 12 months giving a positive reaction, all showed clinical signs of active tuberculosis. Of 104 children in their second year with a positive reaction, 92 showed clinical signs of active tuberculosis; and of 93 in their third year giving a positive reaction, 76 showed clinical signs of active tuberculosis. The sombreness of the prognosis, when a tuberculin reaction is obtained early in life, is emphasized by the same material. Of the 52 in the first year of life, 42 (80.8 per cent.) died; of the 104 in the second year of life, 37 (35.6 per cent.) died; and of the 93 in the third year of life, 21 (22.6 per cent.) died.

92 Measles Complicated by Diabetes Insipidus

V. ANGELINI (*Clinica Pediatrica*, November, 1930, p. 992) records the case of a girl, aged 5, in whom, after a mild attack of measles, polyuria and polydipsia developed, accompanied by anorexia and loss of flesh. The amount of urine passed in the twenty-four hours ranged from 5,200 to 7,600 c.cm., with an average of 6,100 c.cm. Micturition occurred about nineteen times a day; during the night the frequency of micturition and the quantity of urine passed were about the same. The specific gravity of the urine was 1003 to 1004, and the urinary chloride figure was 4.27 to 7.32 grams, as compared with 8.68 to 13.49 grams in a normal child of the same age and weight. Injection of extract of the posterior lobe of the pituitary gland temporarily reduced diuresis to a minimum of 1,400 c.cm. and a maximum of 1,800 c.cm.; the specific gravity rose to 1010, and the chlorides from 0.7 to 2.8 per 1,000. The ocular fundi were healthy, and radiography of the brain showed a normal sella turcica. The case did not come to necropsy, but Angelini suggests that the condition was due to an organic lesion of the diencephalon and hypophysis by the measles toxin.

93 Diagnosis of Aneurysm of the Heart

B. STRANDELL (*Acta Med. Scand.*, November 15th, 1930, p. 148) recalls the earlier work of Sternberg on the clinical course of cardiac aneurysm, in which the following stages of the disease might be differentiated: attacks of stenocardia; pericarditis and softening of the heart muscle; a stage of latency; and a stage of severe injury to the heart muscle. Despite the recognition of these manifestations, the diagnosis of cardiac aneurysm during life remains very difficult, even with the help of radiography. Strandell records four cases of aneurysm of the heart, in three of which the diagnosis was not made until necropsy, although two of them were radiographed. The Wassermann reaction in all three was negative. The fourth patient was a man, aged 42, who had been infected with syphilis at 26, the Wassermann reaction being positive. In the summer of 1928 the patient began to get attacks of angina, from which he gradually recovered. A year later, after a prolonged anginal seizure, radiography showed a distinct rounded shadow which remained visible at the apex when the patient was rotated. In view of the age and history of the patient a diagnosis of cardiac aneurysm due to syphilitic coronary thrombosis was made. He died eighteen months after the onset of symptoms, and at the necropsy were found two cardiac aneurysms, one involving the apex and the other the posterior wall of the left ventricle. The appearance of the aneurysms suggested the possibility of rupture, since they contained no muscle in their walls, and communicated with the cavity of the ventricle by small openings. The pericardium was very firmly adherent to the aneurysms. There was arterio-sclerosis and narrowing of the lumen in the coronary arteries, but no evidence of syphilitic involvement.

94 Subacute Inguinal Lymphogranulomatosis

A full description is given by P. CHEVALIER and J. BERNARD (*Rev. de Méd.*, December, 1930, p. 856) of a special form of inguinal adenitis, which was first noted by Nicolas, Durand, and Favre, and has been termed by them subacute inguinal lymphogranulomatosis; it is also known as the disease of Nicolas-Favre. The condition is universal, and is far more common in males, especially adults, than in females. The infection is conveyed genitally, and the disease is essentially venereal, with an incubation period of 10 to 25 days. The onset is usually insidious and slowly progressive. The first symptoms are discomfort in the groin with slight malaise; anorexia, fatigue, and arthralgias are generally observed. An inguino-iliac adenitis with marked periadenitis supervenes; as a rule this is unilateral, the ganglia on the opposite side being only slightly hypertrophied. The stage of suppuration which follows may last for months or even years. The process ends in a dense fibrous sclerosis. The disease may be complicated by an extensive suppuration or by a chronic inflammation and fibrosis which obliterates the lymphatics. Recurrences are exceptional. The authors enumerate various clinical forms of the disease, and discuss its pathological anatomy and differential diagnosis. Treatment is essentially medical, but local radiotherapy has given satisfactory results. Internal remedies recommended are iodine (orally or intravenously), and injections of emetine, antimony tartrate, and copper sulphate. Cure has also been obtained by the use of vaccines and tuberculin. Though Nicolas has found internal treatment unsatisfactory, the present authors hold the contrary opinion.

95 Percutaneous Immunization in Diphtheria

H. BAAR and H. BENEDICT (*Klin. Woch.*, December 20th, 1930, p. 2395), acting on the principle that the production of an erythema at the site of application of toxoid facilitates its absorption, made use of a mustard plaster before the toxoid was applied by inunction according to Lowenstein's method of active immunization against diphtheria. They found that of 106 children so treated 85 became negative and 21 remained positive; at the end of six weeks only 4 were still positive. Comparison of these figures with the results obtained by the original method shows a remarkable improvement, especially since all cases were scarlet fever patients, who, as Kundratitz and Hartmann-Karplus have shown, are more difficult to immunize than other children.

96 Curability of Congenital Syphilis

According to E. A. MORGAN (*Canadian Med. Assoc. Journ.*, December, 1930, p. 811) the securing of a permanently negative Wassermann reaction in congenital syphilis depends primarily on the stage of the disease when treatment is commenced. In the early stage 80 per cent. can be cured, in the latent stage 64 per cent., and in the late stage 49 per cent., provided that the treatment is continued for a reasonable time, which he suggests is eleven months for the early stage, and twenty-eight

months for the latent and late stages. Highly resistant cases in infants are found only in about 8 per cent., in the latent stage in 15 per cent., and in the late stage in 34.5 per cent. This estimate is founded on the results obtained in treating 270 cases during the last eleven years. Morgan adds that some cases will become Wassermann-negative even if treatment is incomplete, and he has collected evidence that the time factor is of importance in the production of such a negative reaction.

97 Recovery from Pneumococcal Meningitis

R. BHAGEERUTTY (*Thèse de Paris*, 1930, No. 377), who records nine illustrative cases, including that recently reported by H. Stoessiger (*Epitome*, June 7th, 1930, para. 521) in patients aged from 6 days to 38 years, states that, though pneumococcal meningitis is almost always fatal, recovery may sometimes ensue owing to the following bacteriological and therapeutical factors. There may be an attenuated form in which only a small number of pneumococci are present, and the cerebro-spinal fluid is clear. Serum treatment is occasionally successful. Repeated lumbar puncture may diminish the tension of the cerebro-spinal fluid, and help to expel the micro-organisms and their toxins. The organic resistance of the patient is probably the chief cause of recovery.

Surgery

98 Osteomyelitis Treated by the "Orr" Method

I. E. DEIBERT (*Annals of Surgery*, December, 1930, p. 1087) reviews 100 cases of acute and chronic osteomyelitis and compound fractures treated by the "Orr" method; 37 were acute, 57 chronic, and 6 compound fractures. The age incidence was from 1 to 47 years, and every bone in the body was included in the series with the exception of the skull. It was found that the predominating organisms were the *Staphylococcus aureus* and *albus* with an occasional *Streptococcus haemolyticus*. Orr's operative treatment consists in the making of a fairly large incision over the infected bone area and the spreading apart of the skin, muscles, fasciae, and periosteum to afford sufficient access. A window is chiselled into the diseased area to provide drainage; dead bone is removed, and the infected parts are cleaned gently with a curette. The wound is dried and wiped out with 10 per cent. tincture of iodine and then 95 per cent. alcohol; it is packed wide open with sterile paraffin gauze, and covered with a sterile pad and bandage. A plastic bandage or splint is applied to immobilize the parts and keep them in a correct position. No dressing of the wound is undertaken for several weeks unless there are signs of acute sepsis or because of the odour. The average time for changing the plaster case and dressing was from three to five weeks. In the cases under review there were six deaths from acute osteomyelitis in children for whom treatment had been delayed, but in the remaining cases 75 per cent. of the patients are clinically well. It was found that the wound healed more quickly than by other methods of treatment, the bony defects were fewer, and the subsequent sequestration and secondary operations were lessened. The closed plaster bandage reduced the liability to secondary or mixed infection, and no case of ankylosis of adjacent joints was seen. It was found to be the type of treatment most comfortable for the patient.

99 Diagnosis of Tumours involving the Spinal Cord

From his experience of 300 cases at the Mayo Clinic H. W. WOLTMAN (*Journ. Amer. Med. Assoc.*, November 8th, 1930, p. 1398) states that pain is the first symptom in 80 per cent. of cases of tumours involving the spinal cord. This pain is commonly referred along the segmental distribution of a posterior root; it is frequently of a squeezing or piercing nature, suggesting thoracic or abdominal disease. The segmental distribution of pain is circumferential in the trunk and lengthwise in the limbs. As the tumours grow, the involvement of neighbouring roots affords a guide to the direction of the extension; thus a unilateral sciatica may become bilateral. Pain is increased by any action, such as sneezing, which increases the tension of the cerebro-spinal fluid. Root pains commonly wake a patient between 3 and 4 a.m., and relief is obtained by sitting up or sleeping in a chair, whereby a relative shortening of the spinal cord is effected. The exacerbation caused by flexing the head on the thorax is a valuable diagnostic sign; it is due to traction on the cord. Disturbances of motility and sensibility, and of sphincter control, have a lesser value as localizing signs. High cervical tumours may be associated with sensory disturbances affecting the lower limbs only, and the exposed situation of the decussating pyramidal tracts may lead to a quadriplegia unassociated with such disturbances. Involvement of the descending root of the fifth nerve may cause facial sensory change and, because of the proximity to the foramen magnum, to signs suggesting cranial tumour. Manometric readings of the cerebro-spinal fluid, and their variation when pressure is made on the jugular vein, are much influenced by the obstructive effects of tumours; the fluid itself undergoes changes in colour and chemical composition below the site of the growth. *X* rays are valuable in excluding secondary tumours in bone and primary bone disease, but Woltman has found lipiodol of little service in difficult cases. Among other conditions from which differential diagnosis must be made are multiple sclerosis, retroperitoneal and mediastinal tumours (especially aneurysms), and tabes with associated root pains.

100 Tuberculosis of the Urinary Tract

B. A. THOMAS (*Amer. Journ. Surg.*, November, 1930, p. 308) states that urinary tuberculosis is most often primary in the kidney, is most common in the third, fourth, and fifth decades of life, and occurs about four times as often in males as in females. The right kidney was affected three times as frequently as the left in cases of unilateral disease, the infection almost always arising as a haematogenous infection. Diagnosis must depend not only on the clinical symptoms, but upon bacteriological examination in conjunction with radiography and cystoscopy. It is of the greatest importance that a correct diagnosis should be made before the opposite kidney has become infected. Ureteral catheterization is to be avoided, since this may cause the infection of the other kidney. Treatment of urinary tuberculosis must be both operative and palliative. Early nephrectomy with partial ureterectomy or aseptic nephro-ureterectomy is the procedure of choice in cases of unilateral renal tuberculosis. Spinal anaesthesia, nitrous oxide gas, and ethylene have proved the most satisfactory forms of anaesthesia. In certain operable cases of bilateral involvement, preliminary antituberculous treatment is necessary, and also as a post-operative procedure after nephrectomy. The operative mortality is slight, and a complete cure occurs in about 60 per cent. of cases.

101 Gastric Evacuation

According to Goetze, emptying of the stomach is not brought about by peristalsis, but by a general contraction (systole) of the whole organ, aided by the hydrostatic pressure of the fluid therein, the action being similar to that of emptying the urinary bladder; the cardia closes, the pyloric sphincter relaxes, and the muscular wall contracts. The gastric musculature also has the power of contracting round its contents (peristole) so that, no matter how full or empty, there is always sufficient tone to exert a fairly constant pressure on the contained fluid. In order to confirm this theory in the human stomach, K. H. SCHMIDT (*Deut. Zeit. f. Chir.*, November, 1930, p. 192) has estimated the pressure in different parts of the stomach by passing one thick-walled rubber tube into the antrum, and another into the fundus at the same time, after partly filling the stomach with a thin barium mixture. The level of the fluid in the tubes represents the pressure in that part of the stomach, and is demonstrated by *x* rays. By connecting the upper ends of the tubes to Marey's tambours, and thence to a kymograph,

variations in pressure can be recorded. Schmidt finds that the normal intragastric pressure is from 2 to 25 cm. of water, and consists of the hydrostatic pressure together with the pressure due to the tone of the muscle wall. Differences of pressure in different parts of the stomach are due solely to the level of the tubes in the fluid—that is, to hydrostatic pressure—the active pressure due to the stomach wall being the same all over the organ. A general increase of pressure precedes emptying of the contents through the pylorus. Peristaltic waves usually follow this increase of pressure, but do not themselves increase the pressure in the stomach. After expulsion of the contents the pressure falls again to normal, even though vigorous peristalsis may continue. The fundus probably plays a more important part in this emptying mechanism than the antrum. The erroneous view that peristalsis caused expulsion of the stomach contents has been held because the systolic contraction of the stomach is not demonstrable by *x* rays. Actually, peristalsis in the stomach has a purely mixing and triturating action.

102 Artificial Pneumothorax in Pneumonia in Infancy

During the prolonged course of a case of pneumonia in an infant aged 10 months an interlobar effusion was suspected. On exploration some blood-stained serous fluid was removed, but a pneumothorax was accidentally produced. In spite of this, no increase of dyspnoea or other untoward symptom ensued; the temperature actually fell to normal almost at once, and the child made an uninterrupted recovery, although before the pneumothorax the course of the illness had been long and the prognosis had been unfavourable. This observation led J. DUKEN (*Klin. Woch.*, November 22nd, 1930, p. 2195) to treat seven other cases by producing an artificial pneumothorax on the affected side. In most of these there was similar improvement, though it was found that several refills might be necessary before the temperature returned to normal. In no case was there any untoward symptom which could be ascribed to the introduction of the air. Duken points out that in pneumonia the affected part of the lung, being less active, occupies a smaller space than the normal. In the adult the other lobes undergo a compensatory emphysema, but in the child, owing to the relatively rich interstitial tissue, this compensation is not so complete. The mediastinum tends to be drawn towards the affected side, and the pneumonic lung takes more than its share of blood supply. Both these facts can be demonstrated radiologically. The induction of artificial pneumothorax, by diverting more of the blood to the healthy side (in consequence of the pressure alterations), will actually improve cyanosis in children suffering from severe unilateral pneumonia, and the author has used it for this purpose with considerable success. The cases have been very carefully selected, the indications being: (1) protracted course of pneumonia without response to conservative therapy, (2) marked cyanosis, and (3) anticipation of the development of bronchiectasis. Pneumothorax should not be induced if there is pneumonia or bronchitis in the other lung. J. JAHR and R. NEUMANN (ibid., p. 2200) have used the same treatment in five cases and record similar results.

103 Idiopathic Dilatation of the Oesophagus

F. A. C. SCRIMGER (*Arch. of Surg.*, Part II, December, 1930, p. 1315) describes idiopathic dilatation of the oesophagus, cardiospasm, or achalasia cardia as being second only to cancer in frequency of diseases of the oesophagus. Idiopathic dilatation occurs most often in the thoracic portion, and signifies a diffuse enlargement of the lumen of the oesophagus; the abdominal portion below the diaphragm is not dilated, but is usually thickened and contracted. The oesophagus is also elongated, and may measure up to 46 cm.; it may contain from 1,500 to 2,000 c.cm. of fluid. The wall becomes thickened, and the mucosa frequently inflamed, friable, or ulcerated. It is suggested that the disease is secondary to degenerative changes in the vagi, the closure of the cardia being due to the normal tone acting without nerve control. The condition usually develops before the age of 40; the onset may be sudden and progression intermittent, the chief symptom being difficulty in swallowing and the regurgitation of large quantities of frothy food mixed with saliva. Two cases are reported in which extramucosal oesophagoplasty was performed; in one of these the patient made a good recovery, with satisfactory results a year after operation; in the other case the patient died from a mediastinal infection. In a third case, operation consisted in the exposure of the cardiac end of the stomach through a Marwedel incision, the cutting of the coronary ligament of the liver, and the turning downward and to the right of the left lobe of the liver, thus exposing the cardiac end of the stomach and the subdiaphragmatic portion of the oesophagus. An incision was then made forward through the crura of the diaphragm, the dilated portion of the oesophagus being brought through the opening for at least an inch. This operative procedure avoided the danger of tearing the oesophagus; a risky suture is obviated. In the case so treated recovery was smooth, and soft food could be swallowed after the usual lapse of time.

Therapeutics

104 Antimony in Therapeutics

Though antimony has fallen more or less into disuse in medicine, C. N. MYERS and B. THRONE (*Journ. Lab. and Clin. Med.*, December, 1930, p. 239) show from a history of the drug that it has been a most valuable remedy in the treatment of disease. Particular study has been made of a preparation (M 303) which is composed of both arsenic and antimony; in it one molecule of nitro-hydroxy-phenyl-arsenic acid is reduced with one of nitro-hydroxy-phenyl-stibinic acid, the resulting compound containing the two salts, each in the trivalent condition. This compound, known as the base, is insoluble in ordinary solvents; treated with hydrochloride acid, a soluble preparation is obtained when the hydrochloride solution is precipitated from ether. In this product the favourable ratio between the toxic and the therapeutic dose renders it more satisfactory than any drug now available. Administered intravenously, its action in the treatment of syphilis and leprosy has indicated markedly its value in diseases due to protozoal infections.

105 Fruit Treatment of Diarrhoea in Children

The good results obtained in cases of coeliac disease treated with fruit diet induced FANCONI (*Deut. med. Woch.*, November 14th, 1930, p. 1949) to try the effects of a similar diet in the acute, subacute, and chronic diarrhoeas of children over 1 year old. In the earlier cases the improvement, though marked, was only temporary, the return to ordinary diet being followed by a recurrence of diarrhoeic stools. This was, however, subsequently avoided by the addition of whole milk, cereals, and sugar to the fruit diet very gradually during convalescence. For the first day or two after admission to hospital the children with acute enteritis were given raw fruit only, either fruit juice (orange or bilberry) or mashed bananas ; grated apple was sometimes used in conjunction with or instead of the banana. The appetite, general condition, and stools of the children improved rapidly. Unsweetened buttermilk or almond milk (prepared by mixing an almond meal with warm water) was then added to the diet, the next step being the administration of small quantities of potato purée and sieved steamed vegetables. Milk curd or protein almond milk was included towards the end of the first week, and sour whole milk was gradually substituted for the buttermilk during the second week; crusts and rusks or other cereal foods were also gradually introduced again in small amounts about this time. In the milder cases the diet in which fruit preponderated was continued for a fortnight; in the more severe and the recurrent forms of colitis the fruit and vegetable diet, with the addition of liver, meat, egg-yolk, and milk products, has been continued for months, and in coeliac disease even for years, with beneficial results. The

stools may remain bulky during the treatment because of the large proportion of cellulose in the diet; this, however, does not retard recovery. The temporary loss of weight which occurs during the first few days is due to the low salt content of the diet.

106 Sodium Amytal in Neuro-psychiatric Conditions

W. J. BLECKWENN (*Journ. Amer. Med. Assoc.*, October 18th, 1930, p. 1168) defines narcosis as deep sleep or unconsciousness, more or less prolonged, and rapidly induced by drugs—a condition similar to surgical anaesthesia but not so profound. He has found its induction a most valuable procedure in many neuro-psychiatric states, such as various types of excitement and benign depression, katatonia of the stuporous, cataleptic, and negativistic forms, and in various convulsive conditions (status epilepticus, eclampsia, and tetany). Periodically induced narcosis in these cases simplifies their management and materially shortens the illness; to obtain this effect sodium amytal administration is advocated. Since deep anaesthesia is not desired, the technique differs from that used in surgical anaesthesia. The patient should have no food for four to six hours preceding the administration. The drug is freshly dissolved in water which has been distilled three times, and a 5 per cent. solution is made, each cubic centimetre thus containing 0.75 grain of the drug. The solution is injected intravenously at a rate not exceeding 1 c.cm. per minute. The initial dosage varies with different cases; for neuro-psychiatric patients it is said to be quite safe to give 2 c.cm. more than is necessary to produce corneal anaesthesia. The average patient will thus receive between 7 and 15 grains, or approximately half the amount used for surgical anaesthesia. If given intramuscularly the dose is increased, and the solution is more concentrated. From 2 to 5 c.cm. (10 to 20 grains) of a 20 per cent. solution is given. This narcosis is slower and less profound than that induced by the intravenous method. In mild cases the drug can be given orally in 3 to 6 grain doses; it takes 45 minutes to act by this method, and is effective as a hypnotic in the less severe types, but is useless in disturbed or violent cases. The patient must always be watched from the time of the administration of the drug until the initial narcosis has worn off, because of the danger of aspiration of vomited matter and the possibilities of suffocation. During more than a year Bleckwenn has given over 2,000 injections in 184 cases. He is impressed by the fact that the drug can be used daily over long periods without any untoward reactions. If the method described is followed, the reactions of greatly lowered blood pressure and shallow respirations are avoided. Sodium amytal, it is added, should be used with caution in cases of advanced arterio-sclerosis.

107 Injection Treatment of Paget's Disease

P. DELMAS-MARSALET (*Journ. Méd. de Bordeaux*, November 30th, 1930, p. 900) records the case of a man, aged 60, who on March 27th reported increase in the size of the head, bowing of the lower limbs, loss of teeth, dyspnoea on exertion, violent headaches, muscular cramps, and blanching of the fingers which had lasted for years. With the usual bony changes of Paget's disease there was a prolonged systolic bruit, and the arteries were markedly sclerosed. Radiological examination showed typical thickening and a flocculation of the cranial wall, and the sella turcica was irregularly enlarged; the femora were broadened and bowed, the medullary canal was enlarged, and the femoral arteries were calcified. For three months 50 drops were given daily of a solution of irradiated ergosterol and 60 intragluteal injections of calcium gluconate. Irrasterine was then combined with the calcium preparation and also calcium chloride. The treatment represented a total of 78 grams of calcium gluconate, 33 grams of calcium chloride, and 0.63 gram of irradiated ergosterol. During treatment the cranium did not increase in size, and the headaches, cramps, and blanching of the fingers nearly disappeared, but the blood pressure was unaltered. Radiological examination in June showed evidence of cranial recalcification; the inner table was reconstituted throughout practically its entire extent, though the outer table was still flocculent in appearance. In September the inner table was found to be entirely reconstituted, while the outer table could be delimited throughout its whole extent. Calcification of the falx cerebri in the subethmoidal region was now apparent, and this was considered an indication for the cessation of treatment. Recalcification similar to that in the cranium was noted in the femora, but there was no increase of calcification of the femoral arteries. The author observes that the pathological anatomy of Paget's disease shows a double process of resorption and new formation of bone; he inclines, however, to the view that decalcification is the fundamental change.

Laryngology and Otology

108 Treatment of Vasomotor Rhinitis by Sclerosing Fluid

RICHIER (*Arch. Internat. de Laryngol., Otol.-Rhinol., et Broncho-Œsoph.*, July–August, 1930, p. 843) reports a method of treatment which he has used in 150 cases of vasomotor rhinitis. The cases for this method must be those of purely congestive rhinitis, and not of the parenchymatous or polypoid variety. The nose must be carefully prepared by antiseptic lotions for one week. The mucous membrane is then completely retracted by cocaine and adrenaline solution, retained for ten minutes, and followed by a further application of adrenaline. Richier employs a 5 per cent. solution of the double hydrochloride of quinine and urea. The injection is made by three punctures into the internal surface of the inferior turbinate, and two punctures into the inferior surface. It is essential that the injection should enter deep into the erectile tissue, since otherwise sloughing may result. Richier as a rule requires 5 c.cm. of solution to inject both turbinates. The patients usually complain of a little pain in the nose and face following this treatment, and occasionally temporary deafness (quinine) is observed. A spray of adrenaline and cocaine is ordered daily for one week, after which no further treatment is needed. The author claims that this method is vastly superior to the classical treatment by the galvano-cautery, which requires many applications and is inconstant in its action, and, furthermore, often results in the formation of troublesome adhesions between the turbinates and septum.

109 Treatment of Infected Tonsils by Diathermy

DAUDIN-CLAVAUD (*Rev. de Laryngol., d'Otol. et de Rhinol.*, October, 1930, p. 605) commends diathermy for the treatment of small and medium-sized infected tonsils, and in those patients who object to removal, but who have tonsils which exude pus or caseous material on pressure. He describes two main tonsillar crypts, a superior and an inferior, both of which spring from one superficial sinus. All other crypts are small and secondary, and lead out of these two major crypts. Bipolar diathermy is used, one electrode being placed in the crypt, and the other moved over the surface of the tonsil. In this way all the tonsillar tissue between the surface of the tonsil and the depth of the crypts is destroyed; when healing is complete, the crypts have ceased to exist, and the retention of pus or infected material is rendered impossible. The tonsils and faucial pillars having been painted with Bonain's solution, the cotton-covered right-angled applicators are moistened with the solution, and are introduced into the two major crypts. Entirely satisfactory anaesthesia can be obtained in this way, and peritonsillar injection of anaesthetic solution is unnecessary. An electrode in the form of a right-angled blunt hook is then inserted to the bottom of the inferior major crypt, and coagulation is effected by a movable electrode; this is placed first at the most posterior part of the tonsil, conducted round the inferior portion, and brought finally to a point immediately over the stationary electrode. The blunt hook is then moved to the superior major crypt, and the superior portion of the tonsil is coagulated similarly. One session is usually sufficient. There is

often some pain after the operation, but always less than after complete tonsillectomy. The author has had some cases of secondary haemorrhage on the fifth day, but these caused no anxiety.

110 Primary Carcinoma of the Trachea

F. A. FIGI (*Arch. of Otolaryngol.*, October, 1930, p. 446) reviews the incidence of primary carcinoma of the trachea at the Mayo Clinic since 1918. Although 470 cases of laryngeal cancer were seen, there were only five tracheal cases. These five patients ranged in age from 29 to 77 years; three were women. Carcinoma secondarily invading the trachea is a much more frequent lesion. The symptoms may develop insidiously, or may appear abruptly following an acute infection of the upper air passages. There are paroxysms of coughing, and dyspnoea which at first is only present on exertion but later becomes extreme, being generally both expiratory and inspiratory. Small clots of blood may be coughed up, but acute haemorrhage is usually of late occurrence. Hoarseness is most commonly a late symptom, and is due to the involvement of the recurrent laryngeal nerve. There is as a rule very little loss of weight. The clinical course is rapid, the duration being a few weeks to a few months. Death is due to respiratory obstruction, pneumonia, or haemorrhage. Metastases develop late or not at all. Histological examination of the tumours recorded in the literature demonstrates glandular carcinoma as the most common type of growth. Squamous-celled carcinoma was found, however, in three of the five cases at the Mayo Clinic. The diagnosis is made by indirect laryngoscopy or by bronchoscopic examination of the trachea, and the author points out that all cases of dyspnoea, when physical and *x*-ray examinations of the thorax are negative, should be subjected to bronchoscopy. The prognosis is unfavourable in the upper portion and practically hopeless in the lower part of the trachea. The treatment suggested is tracheofissure and removal of the growth by surgical diathermy, followed by intensive radium treatment of the lymphatic area.

Obstetrics and Gynaecology

111 Heart Disease in Pregnancy

Discussing pregnancy in the cardiac patient, W. D. REID (*Journ. Amer. Med. Assoc.*, November 15th, 1930, p. 1468) points out that the diagnosis of heart disease in patients under the age of 40 is rarely justifiable without one or more reliable signs; in the elderly the reverse is true. Most pregnant women are younger than 40. The first essential in these is an accurate diagnosis of the cardiac condition, since organic cardiac disease is found to be absent in many pregnant women who have suspicious symptoms. Cardiac disease, if present, is nearly always a rheumatic manifestation. The average age at death of this class of patients is 35.5 years. Statistics show that the average age of death was 42.4 years for married women with heart disease, and 47.2 years for unmarried women. The average number of children of married women in the group which was analysed was 5.75. The mortality from cardiac disease in pregnancy is but slightly greater than that of other cardiac patients of similar age. Probably 90 per cent. or more of cardiac patients survive pregnancy and parturition. Reid concludes that married women with rheumatic heart disease die before their time because of the natural evolution of this disease rather than of child-bearing. This, he adds, should be considered when advising cardiac patients regarding marriage and pregnancy. G. HERMANN and E. L. KING (ibid., p. 1472) emphasize the importance of repeated electrocardiographic studies in pregnant women the subjects of heart disease, and records 24 cases, which are grouped in the order of their severity and various complications. The serious significance of bundle branch block, and the hopeful possibility of its temporary, transient nature, are demonstrated. Auriculo-ventricular block, fibrillation, and the less serious abnormalities and their effect in the cardiac function are also discussed. The state of the heart muscle is of the utmost significance. Alleviation of congestive heart failure before permitting labour or surgical delivery to proceed is necessary for success. Ether was found to predispose to fatal pulmonary oedema in patients with the lung congestion of mitral stenosis. Of the general anaesthetics ethylene is the first choice as regards the cardiac condition, but local anaesthesia is much the safest. Acute rheumatic endocarditis occurring during pregnancy responded to treatment, and subsided as in non-pregnant cases. Extensive and usually fatal pulmonary thrombosis is shown to occur relatively frequently in instances of serious idiopathic myocardial degenerative changes.

112 The Anterior Lobe of the Pituitary and the Ovary

E. PHILIPP (*Zentralbl. f. Gynäk.*, December 6th, 1930, p. 3076) endeavours to correlate the histological structure of the anterior lobe of the hypophysis at various ages, during pregnancy and after castration, with its hormonal activity on the ovary as shown by implantation experiments in immature female mice. The prehypophysis of non-gravid mature human females gives a well-marked prolan reaction (Zondek and Aschheim) of Grades I, II, and III; it is specially rich in chromophilic cells. After castration the prehypophysis contains increased numbers of eosinophil cells, and its implantation produces a specially well-marked prolan A effect (Grade I reaction). Implantation of the foetal prehypophysis, or that of the newborn infant, the mostly undifferentiated cells of which contain a few eosinophils, gives occasionally a slight Grade I reaction. The prehypophysis of older children, which contains more numerous chromophils, causes a well-marked Grade I reaction. In these, as in castrated subjects, prolan A is demonstrable in the urine. According to Philipp's view the pregnancy reaction of Zondek and Aschheim is due to the presence in the urine of a hormone not derived from the prehypophysis but from the chorion. He thinks that the only instance of the "pregnancy reaction" of the urine being due to a prehypophyseal hormone is that of women after castration.

113 Surgical Treatment of Placenta Praevia

TURENNE (*Gynécol. et Obstét.*, October, 1930, p. 289) summarizes the advantages of Caesarean section in the treatment of placenta praevia. The technique is familiar and within the power of those possessing general surgical experience; the operation is very speedy and gives good visual access. It follows that the foetal as well as the maternal risk is lessened, and that quick and complete delivery of the placenta is assured. Treatment by arterial ligature or by hysterectomy is easily undertaken if uterine inertia complicates the section. Tears of the cervix and lower uterine segment, which frequently contribute to a fatal termination, are avoided. The disadvantage of Caesarean section is the risk of infection; this is greatly diminished by early operation. In appropriate cases a low Caesarean or Portes's operation should be performed. The following are among the conclusions which have been unanimously adopted in Uruguay. Cases of placenta praevia should be sent to hospital as soon as they are diagnosed. Delivery through the vagina should be restricted to cases in which the placenta is comparatively remote from the internal os, and to cases well advanced in labour in which cervical, placental, or foetal injury is improbable. Caesarean section is indicated (1) whenever, with little or no cervical dilatation, the placenta can be felt, even if little or no bleeding is present; (2) in cases with well-dilated cervix, with the placenta in the area of the internal os, and with considerable actual or recent haemorrhage or any degree of persistent haemorrhage; and (3) when after persistent or repeated haemorrhage clinical examination reveals thickening of the lower uterine segment and malaccommodation of the presenting part. When an abdominal intervention is planned no vaginal examination or manœuvre should be made. With few exceptions, and in every case in which infection is suspected or certain, a Mikulicz drain should be used at the end of the operation.

114 Therapeutic Use of the Reflex Action of the Round Ligament

F. IMIANITOFF (*La Gynécol.*, November, 1930, p. 652) gives an account of the therapeutic employment of the reflex action of the round ligament. He has found that a course of stimulation of this reflex is of great value in the treatment of retroversions, chronic metritis, subinvolutions, tubo-ovarian congestion, and inflammation of the gland of Douglas. The particular reflex present in the round ligament is of sympathetic origin, and is provoked by stimulation of the periphery of the pubic hairs, or the internal aspect of the thighs. A high-frequency current is considered the most appropriate stimulus. The reflex acts by producing a contraction of the smooth muscle fibres of the round ligament. Since these are in direct continuity with the fibres of the uterine wall, a slow and generalized contraction is instigated, causing erection of the uterus and pulling it forwards. The repeated stimulation of the ligamentary reflex has a tonic effect on the genital apparatus, resulting in the re-education of the uterine band. This stimulation is accompanied by hyperaemia of the pelvic basin. Contra-indications are acute and subacute inflammations, adhesions, large tumours, malignant tumours, and the latter half of pregnancy. The author records results of 135 cases treated in this manner. He cured thus 42 out of 60 cases of retroversion; 24 of 32 cases of congestive dysmenorrhoea; 10 of 14 subinvolutions; while of 17 cases of tubo-ovarian congestion, 3 were cured, 10 alleviated, and 4 were unrelieved.

Pathology

115 Enumeration of Blood Platelets

I. OLEF (*Arch. Int. Med.*, October, 1930, p. 585) describes an improved method for the enumeration of blood platelets; he finds that the most satisfactory preserving fluid is a solution containing 2 grams of sodium metaphosphate and 0.9 gram of sodium chloride in 100 c.cm. of distilled water. It is essential to avoid all contact between the undiluted blood and any surface to which platelets tend to adhere, and pipettes and counting chamber are discarded. A drop of blood freshly drawn from the skin after washing with soap and water and alcohol and ether, pressure being avoided, is allowed to fall into a small paraffin cup containing some of the diluting fluid, to form about 1 in 10 dilution; this is stirred with a wooden applicator coated with paraffin, and a few drops of the mixture are transferred to a cleaned glass slide, covered with a cover-slip, and sealed. The platelets and red cells are counted in random fields taken in different parts of the specimen until 250 to 500 cells (in each of two preparations) have been seen. A red cell count is then made in the usual manner, and the absolute number of platelets per cubic centimetre is determined. The results obtained are higher than those of previous similar methods, the maximum in Olef's series being 1,108,000 per c.mm. and the minimum 407,000; the average for males was 650,000, and for females 587,000. It was noted that when the platelet count is below 500,000 per c.mm. the platelets tend to be large.

116 Renal Innervation

A. M. DOGLIOTTI and M. MAIRANO (*Arch. Ital. di Chir.*, September, 1930, p. 109) discuss the innervation of the kidney and the effects of section of the nerves and decapsulation. They describe the anatomy and functions of the renal nerves, and found by experimental investigations on dogs that partial interruption of the nerves going to the kidney is sufficient to relieve pain. As regards the vasomotor function of these nerves, they found both vaso-constrictor and vaso-dilator fibres present, the latter in small numbers. After section, regeneration was completed in the nerves, tested anatomically and functionally, in four to six months. The results of complete resection and of simple sympathectomy of the periarterial branches are also discussed. The effects of decapsulation were studied in 23 cases; the capsule was rapidly replaced, and was already evident after six to eight days. The new capsule was less elastic and the normal transcapsular anastomosis was destroyed, but a few days later vessels which could be injected were present, and for a short period afterwards there was an increase in the circulation in the kidney. Functionally, an improvement was observed similar to that seen after periarterial sympathectomy. An extensive bibliography is appended.

117 Increase in Virulence of the B.C.G. Strain

P. UHLENHUTH and W. SEIFFERT (*Zeit. f. Immunitäts.*, December 23rd, 1930, p. 187) conducted virulence tests on two strains of tubercle bacilli that had been isolated in 1902. One of these, Tb.18, was of bovine, the other, Tb.1, of human origin. In repeated tests on rabbits and guinea-pigs during the years 1926–30 these two cultures proved to be relatively avirulent, showing, if anything, a slight progressive fall with advancing time. In spite, however, of their relative avirulence to the majority of animals, occasional guinea-pigs inoculated developed severe generalized tuberculosis. Passage experiments, using material from these animals, proved negative, and the authors concluded that these exceptional results were due to a peculiarly high susceptibility of the individual animals, and not to an increase in the virulence of the organisms. In one experiment, however, an apparent rise in virulence to guinea-pigs did occur. Four rabbits were inoculated with Tb.18, and though scarcely any lesions resulted, the organs of these animals set up fairly severe tuberculosis in a number of guinea-pigs inoculated with them. From this the authors conclude that a bovine strain which partially regains its virulence may behave not unlike a human strain, being virulent for guinea-pigs but not for rabbits. Of even greater interest were experiments made with the B.C.G. strain. Seven guinea-pigs were inoculated intraperitoneally with 5 mg. of culture. After 14 months one of these animals died of severe generalized tuberculosis. Cultures were prepared from the organs, and 1/10 to 1/100 mg. were inoculated into ten fresh guinea-pigs; all these animals died in seven to ten weeks from severe generalized tuberculosis. Similarly, three rabbits inoculated with culture or with tissue died in three months with severe generalized tuberculosis. It is suggested, therefore, that under certain conditions the B.C.G. strain may revert to the fully virulent condition.

118 Anaerobic Blood Culture by the Boëz Method

By means of the anaerobic blood culture by the Boëz method Dr. M. STOLZOVÁ-SUTORISOVÁ (*Bratislavské Lekárske Listy*, November, 1930, p. 594) states that he has been able to recover pathogenic microbes in 27 out of 29 cases of sepsis. As a control the cultivation of the organisms in the same cases by means of the usual broth-glucose method succeeded in only 10 cases. The Boëz method, which was originally described in the *C. R. Soc. de Biologie*, 1924, allows the simultaneous cultivation of both aerobic and anaerobic forms. At the same time the bactericidal properties of the blood are destroyed by the addition of acid citrate (which lowers the *p*H) to the venous blood. Another advantage is the possibility of transporting the blood to a distant laboratory without destroying the microbes.

119 Local Vascular Changes in Splenic Anaemia

J. MCMICHAEL (*Edin. Med. Journ.*, January, 1931, p. 1) defines three distinct groups of local vascular changes in splenic anaemia—namely, hyaline changes, splenic phlebitis, and the appearance of the siderotic nodule. The first is said to be common after the age of 10, and is associated with lymphoid involution changes; it has no pathological significance. Splenic endophlebitis is probably determined by raised portal blood pressure, the calcification and thrombosis being secondary phenomena. The siderotic nodules result from periarterial haemorrhages due to the congestion of the spleen rupturing the ellipsoidal capillaries. In cases of hepato-lienal fibrosis there was found a constant relation between these nodules and haematemesis, and the author attributes both to the increased portal blood pressure.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

120 Unusual Cases of Priapism

M. HUHNER (*Med. Journ. and Record*, December 3rd, 1930, p. 521) records six unusual cases of priapism in which the common causes were absent, there being no symptoms of venereal disease, traumatism, leukaemia, alcoholism, spinal disease, or cerebral neoplasm. All the cases had persisted for many years in spite of various treatments, but in two instances good results followed epidural injections. The first patient remained well for eleven years after two epidural injections of 60 c.cm. of normal saline solution with intervals of twenty days between each. During these years he was able to indulge in normal coitus, and his wife gave birth to a healthy child. The symptoms then returned, but he remained quite free after another epidural injection. In the second case the symptoms had existed for eleven years, but ceased immediately after an epidural injection of novocain in 60 c.cm. of saline solution, followed a week later by another injection containing novocain 10 c.cm. in 80 c.cm. of saline solution. The author attributes the improvement directly to the epidural injections.

121 Convulsions in Disseminated Sclerosis

C. B. RICH (*Canadian Med. Assoc. Journ.*, December, 1930, p. 820) reports a case of a severe convulsive attack in a married woman, aged 26, in whom signs of disseminated sclerosis had previously been detected. The patient was very pale and foamed at the mouth; there were spasmodic contractions of the limbs, face, and eyelids, more marked on the left side. The corneal reflexes were absent. The convulsions were controlled with difficulty by chloroform and morphine, leaving the patient deeply comatose, with very slow, shallow respirations. She was irrational during the next few days, and had no control over the urine or faeces. A week later she had regained control, and could speak rationally, but the speech was "scanning," and there was a syndrome of nystagmus, intention tremor, absence of the left biceps jerk, loss of abdominal reflexes, indefinite plantar response, and definite weakness in the right leg. Six weeks later all the reflexes had returned; the nystagmus and the intention tremor were hardly noticeable, and the patient walked unsupported, though with a slight limp. The Wassermann reactions of the blood and spinal fluid were negative; the colloidal gold reaction was 4555541000, and the globulin reaction (Pandy) was positive. Rich comments on the rarity of such convulsions in disseminated sclerosis, and suggests that in the delicate, highly strung, and probably unstable nervous system the interaction of nerve cells in some section was interrupted, causing a slight trophic disturbance, and a consequent vicious circle.

122 A Rubella Epidemic

M. O. BELSON (*New England Journ. of Med.*, November 27th, 1930, p. 1076) states that, during the first five months of 1930, 118 cases of rubella were reported from Charlestown, a section of the city of Boston, as compared with only one case during the whole of 1929. The characteristic features of the epidemic were as follows. It was remarkably mild. There was an almost complete absence of catarrhal symptoms preceding the eruption. In 35 out of 36 cases seen by Belson the eruption was the first symptom, and was not accompanied by itching or followed by desquamation. The eruption was most pronounced on the extremities and disappeared within twenty-four to seventy-two hours. In four cases a rash was seen on the palate. Enlargement of the posterior cervical glands was present in every case. The temperature was normal in 60 per cent., and in the remainder the rise of temperature ranged from 0.2° to 1° F., with one exception, in which it rose to 100° F. There were no complications.

123 Uraemic Meningitis

E. BOEGNER (*Thèse de Paris*, 1930, No. 317) maintains that meningeal reactions are more frequent in the course of uraemia than was formerly supposed. They are often absolutely latent, and systematic lumbar puncture in every case of nervous uraemia is required in order to detect them. The clinical phenomena are apt to vary considerably; in some cases the meningitis is discovered only by lumbar puncture, while in others the symptoms are definite and resemble those of the acute type. They may either supervene as a complication of nephritis, or appear at the same time as the renal symptoms. Their pathogenesis has been a matter of dispute. By some they have been regarded as exclusively toxic, and by others as infective in nature, but in many cases both causes are probably responsible, anatomical lesions of the meninges in chronic nephritis favouring the localization of intoxication or infection of the nervous system. A toxic origin for the meningeal symptoms should not be admitted until a complete cytological, bacteriological, and clinical examination has been made of the cerebro-spinal fluid.

Surgery

124 Cancer Developing in Burn Scars

N. TREVES and G. T. PACK (*Surg., Gynécol. and Obstet.*, December, 1930, p. 749) record a study of 28 cases of carcinoma developing in burn scars, all of which fulfilled Ewing's postulates. Malignant degeneration of scars is due to the surface extent and depth of the burn; the nature of the exciting agent, its capacity for heat absorption, and degree of temperature with the duration of contact are also factors. These tumours may be divided into acute wound and chronic scar cancers; the former develop within a year, and are more common in older subjects with atrophic, keratotic skins. The age of the scar is a more important factor than that of the individual. This history of scar cancer conforms to the general histogenesis of epitheliomata; this point is discussed in detail. These neoplasms appear in those parts of the head and face, and of the extremities most subject to burns. The authors have noted that many developed in regions where ordinary epitheliomata are infrequent—namely, the arm, elbow, groin, and popliteal space. Scar cancers on the head and face are the more serious since a radical operation is precluded. Irradiation, especially with heavily filtered radium at a distance, should be the first treatment; if this is not available, a wide local excision or cauterization may suffice. Curetting is inadvisable. The extent of an operation, if necessary, will depend on the location and extent of the lesion. Local excision of well-developed scar cancers is unsuccessful and dangerous. As a prophylactic measure, the adequate treatment of burns (early skin-grafting and radical excision of the scar) is emphasized.

125 Primary Tumours of the Heart

R. LERICHE and R. BAUER (*Arch. des Mal. du Cœur*, October, 1930, p. 645) describe a case of primary new growth of the heart and review the literature. These neoplasms are very rare, and many recorded cases have probably been instances of secondary tumours or of organized pedunculated thrombi. According to their site of origin, cardiac growths may be classified as valvular, intracardiac, and mural. The valve most frequently affected is the tricuspid, the growths being fibromata or myxomata. Intracardiac neoplasms are usually attached to the wall of the left auricle, and may be pedunculated or sessile; ultimately they may fill the cavity completely. Histologically they resemble the valvular growths. Neoplasms in the myocardium vary considerably in their size

and situation, but most often involve the left auricle. They are always solitary, but metastases may be observed in the neighbouring muscle; when they are large the great vessels or the valves may be interfered with, while interruption of the bundle of His has been observed from this cause. These tumours are generally sarcomata or rhabdomyomata. Clinically, valvular neoplasms may give signs of interference with the functions of the affected valve, while a growth in one of the chambers of the heart or in its wall may cause no symptoms or signs. Dyspnoea, intrathoracic pain, and haemorrhagic pleural effusion are the manifestations that have been most frequently observed. In the author's case a woman, aged 53, complained of dry cough and pain in the right side of the chest. There was dullness over the right side, but no significant signs were found in the heart. Radioscopy showed a dense rounded shadow corresponding to the area of dullness, and calcified at its upper border, which extended downward from the level of the second rib. Operation was undertaken for a dermoid cyst, but at necropsy a sarcoma was found originating in the right auricle and involving about two-thirds of the heart.

126 Trauma and Appendicitis

F. EICKEN (*Zentralbl. f. Chir.*, December 13th, 1930, p. 3095), who records an illustrative case, agrees with Lutz, who only admits that appendicitis is traumatic when traumatic changes are found at the operation, such as laceration of the serous membrane or haemorrhage into the layers of the appendix, or at least in the immediate vicinity. Eicken also requires that there should be undoubted microscopical evidence of an external injury. If such conditions are fulfilled the number of cases of traumatic appendicitis must be extraordinarily small. Sprengel, indeed, maintains that there is no connexion between trauma and appendicitis. Eicken's patient was a man, aged 27, who after hitting the right side of the abdomen against a gymnasium pole developed symptoms of appendicitis. On operation a small haematoma was found in the rectus sheath, but there was no peritoneal exudation, and the appendix was normal. Recovery was uneventful.

Therapeutics

127 Milk Injections in Erysipelas

For the local treatment of facial erysipelas, J. CHALIER (*Journ. de Méd. de Lyon*, December 5th, 1930, p. 713) employs only moist alcohol dressings, care being taken to protect the eyes. For general treatment, antistreptococcal serum has undoubtedly given good results, but Chalier strongly advocates the use of injections of milk, basing his opinion on the results obtained in over 1,000 cases. There followed a lowering of the temperature and a marked improvement in the general symptoms, especially in the nervous signs and delirium. The local effect is equally striking, and in many cases a distinct amelioration is noted after the first injection. The first doses are the most active; if these produce no effect, subsequent injections will probably prove useless. In favourable cases cure is obtained in two to four days; the average duration of the disease, however, is six days. Early treatment is of great importance. If injections are begun on the first day, the disease rarely lasts more than four days; if they are postponed to the fourth or sixth day, the treatment is of slight benefit. This method is said to be of great value in preventing the occurrence of exacerbations, and in forestalling or minimizing suppuration. Chalier remarks, however, that when the limbs are affected the results have been less favourable. A few cures have been obtained in erysipelas of the newborn, an almost invariably fatal malady. He uses filtered milk, boiled in a water bath for about twenty minutes. The adult dose is 10 c.cm., and this is given daily; three injections usually suffice, four being rarely needed. In children the dose ranges, according to age, from 2 to 5 c.cm.; in the newborn 0.5 to 1.5 c.cm. are given. The injections may be subcutaneous or intramuscular, the former being preferable. They cause local tenderness and redness, which readily yield to hot, moist applications. A transient, slight rise of temperature usually ensues, and occasionally headache, nausea, and lassitude. No severe effects such as anaphylactic shock have been observed. Contraindications are tuberculosis and cachectic states, uncompensated cardiopathies, nephritis, and alcoholic hepatitis. Well-compensated cardiac valvular disease and the albuminuria of erysipelas are not contraindications. Pulmonary complications are said to benefit from the injections.

128 Treatment of Peptic Ulcer

J. MEYER and L. B. KARTOON (*Arch. Int. Med.*, November, 1930, p. 768) investigated the effects of intravenous injections of foreign protein upon peptic ulcer in eleven patients in whom the clinical diagnosis was arrived at from an analysis of the history, symptoms, and such physical signs as localized tenderness, positive radiograms, and analyses of the gastric content and stools. Except for meat, the patients were on general hard diet and were allowed to be up. In addition to a routine Ewald test meal, a control fractional gastric analysis was made in the case of each patient, and on the following day an intravenous foreign protein injection of from 500 to 800 million gonococcus or typhoid vaccine was given. Five or six injections of the same doses were given at intervals of from five to seven days if the initial reaction was severe, but, if mild, the doses were increased to 1,000 million, 1,500 million, and up to 2,400 million. From twenty-four to forty-eight hours after each injection fractional gastric analyses and *x*-ray examinations were made before the first and after the last injections, with analyses of the stools throughout the whole observations. The gastric acidity was decreased in five patients, unchanged in four, and increased in one. The relief from pain accompanying treatment appeared to be independent of changes in acidity. The authors believe this to be due to the diminution in gastric tonus and contractions which followed the injections, and they think that the increased vascularity in the stomach and capillary bed near the ulcer is the important factor in such relief. They consider that the rhythmic pain in ulcer is due to rhythmic variations in the vascular bed in and around the ulcer, associated with digestive peristaltic activity. They add that, from the point of view of treatment for peptic ulcer, such non-specific protein can only be regarded as an adjunct to other methods.

129 M. LOEPER and M. DEBRAY (*Bull. Soc. de Thér.*, October, 1930, p. 232) record 17 cases of peptic ulcer, consisting of 2 ulcers of the lesser curvature, 7 pyloroduodenal ulcers, 7 purely duodenal ulcers, and one case of periduodenitis, treated by subcutaneous injections of pepsin (0.1 gram) combined with sodium benzoate. In almost every instance the pain and vomiting ceased between the fourth and seventh injections. Radiological examination performed ten days after the termination of a series of injections showed a cessation of the spasm, improvement in the passage of food from the stomach to the duodenum, and a diminution of hyperkinesis. Two other patients, suffering from cancer of the stomach and cancer of the pancreas respectively, derived scarcely any benefit from this treatment, which is an example of combined protein and endocrine therapy.

130 Diet in Catarrhal Jaundice

P. CHEVALIER (*Bull. Soc. de Thér.*, November 12th, 1930, p. 268) deprecates a milk diet in catarrhal jaundice, but recommends that as soon as the stage of fever and gastric intolerance has passed, and the patient has regained his appetite, he should receive underdone meat such as roast beef or ham, accompanied by vegetables and fruit (cooked or raw). Bread and alcoholic drinks should be forbidden, but water should be given freely. A meat diet, while having no action on the jaundice itself, considerably improves the general condition, so that the patient recovers his health before the jaundice disappears.

Radiology and Electrology

131 Radiological Diagnosis of Scirrhous Gastric Cancer

L. TURANO (*Il Policlinico*, Sez. Med., October 1st, 1930, p. 469) reports six cases of gastric disease illustrating points in the radiological diagnosis of scirrhous cancer. The most suggestive signs of this condition are a small high stomach which is sometimes funnel-shaped, retention of food in the supracardial portion of the oesophagus, very rapid emptying of the stomach and filling of the duodenum and small intestine, and the absence of peristalsis. The patients are usually of advanced age, with slow onset of symptoms; pain, wasting, anorexia, feeling of emptiness in the stomach, and constipation are the most common. As a rule, palpitation of the stomach reveals nothing abnormal. In all these cases the radiological findings must be correlated with the clinical history and symptoms. In the differential diagnosis the other possibilities include gastric syphilis, plastic linitis, tuberculosis, contraction due to corrosive poisoning, and spasm. Special attention is paid by Turano to gastric syphilis, and reference is made to 87 cases collected from the Mayo Clinic. Three main types of gastric scirrhus are described—prepyloric, median, and total—corresponding to the different parts of the stomach affected. The author's case was of the second type, in a man aged 35. The operation revealed diffuse infiltration of the stomach but no sign of ulcer, and nothing more was done. Six months later the patient reported himself as being very well; he had put on 10 kilos in weight.

132 Encephalography in Fixed Lesions of the Brain

B. CROTHERS, E. C. VOGT, and R. C. ELEY (*Amer. Journ. Dis. Child.*, August, 1930, p. 227) consider that encephalography—the removal of cerebro-spinal fluid and its replacement by air—is a justifiable procedure for topical diagnosis and prognosis in cases where trauma or infection of the nervous system has resulted in cerebral damage. Reaction is the rule. During the injection, pallor, sweating, and vomiting are common, and rather alarming collapse is not rare. Pyrexia, with stiffness of the neck and a positive Kernig sign, suggesting meningeal irritation, begin a few hours afterwards, and last in some cases for several days. The authors have had only one death, and think that there is no likelihood of the symptoms being made worse. An absolute contraindication is increase of the intracranial pressure. The authors favour the ordinary lumbar puncture route, with the child sitting up; frequently repeated small doses of morphine until extreme drowsiness supervenes, followed by careful local anaesthesia, is probably the best preparation. They use one needle with Ayer's manometer and a three-way stopcock. The pressure is observed immediately after the introduction of the needle, and at intervals during the whole procedure; it is kept throughout at a lower level than at the beginning, and left at 100 mm. of fluid or lower. The fluid is allowed to drain slowly until 5 c.cm. have been withdrawn; 5 c.cm. of air are then introduced gently from a glass syringe. The pressure is checked and the process repeated; varying amounts of air, 20 c.cm. to 50 c.cm., are needed. The child usually remains quiet with a reasonably steady pulse and good colour, but pallor, irregular respiration, profuse sweating, and vomiting are not unusual, and give rise to some anxiety. For radiography the authors use an ordinary Potter-Bucky diaphragm with a horizontal table. With the patient in the prone position, they take right and left lateral stereoscopic films, shifting lengthwise to the patient at a distance of 25 inches (63.5 cm.). The patient is then placed on the back for the antero-posterior view. The head is turned from side to side, beginning with an angle of about 60 degrees, but gradually diminishing the arc till the face is directly up; this equalizes the remaining fluid and air in the ventricles. A single straight antero-posterior exposure is then made. After this the patient is turned face downwards, and a postero-anterior film is taken which outlines the posterior horns. The authors classify the film showing unusual distribution of air into four groups: (1) reasonably symmetrical dilatation of the ventricles—generally due to a deficiency of brain tissue; (2) marked asymmetry of ventricles, presumably from unilateral atrophy (the displacement of the intracranial contents is towards rather than away from the enlarged ventricle—a vital point in cases of tumour); (3) evidence suggesting deepened subarachnoid spaces dependent on cortical atrophy; and (4) absence of air in the ventricles—due to some unknown factor or to faulty technique.

133 Radiation Treatment of Polycythaemia Vera

G. T. PACK and Ll. F. CRAVER (*Amer. Journ. Med. Sci.*, November, 1930, p. 609) state that in polycythaemia with splenomegaly (originally described by Vaquez) irradiation is pre-eminently the mode of treatment—a view based on the character of the pathological process. The disease seems to be due to chronic overproduction of the erythrocytes, rather than to their delayed destruction or prolongation of life. The stimulus or cause of this condition is unknown, but its chief seat of action is the bone marrow, in which there is increased erythroblastic activity; this hyperblastic bone marrow is radio-sensitive. Erythraemia is analogous to myelogenous leukaemia, in which disease irradiation is the most satisfactory treatment. Both maladies occur during the same age periods, pursue the same chronic fatal course, and in each certain transitional forms exist. The authors believe that physical agents (radium and *x* rays) are superior to chemical ones in treating diseases characterized by excessive activity of bone marrow, the results, though temporary, being of longer duration. Since the spleen must be intact and functional, splenectomy is contraindicated in erythraemia. Venesection affords symptomatic relief, but may possibly stimulate the marrow dangerously to increased activity. Treatment must be directed to the bone marrow rather than the spleen, and sufficient irradiation must be given to inhibit or depress, but not destroy, erythropoiesis; the dosage depends on the severity of the illness. Both short and long bones are treated, the latter receiving most attention, especially if painful. No treatment is given to the head (to avoid alopecia) or to the pelvic bones in young women and men (to avoid damaging the gonads). Exactness in dosage is essential, and three to six exposures are given weekly. Sometimes three series are necessary, and these may be given at intervals of three to six months, depending on the response to treatment. Irradiation in polycythaemia does not cause the toxaemia which frequently follows its use in myelogenous leukaemia. The plethora is relieved, the general health improved, and life is prolonged by radiotherapy, but this measure is not capable of preventing a fatal termination. Four illustrative cases are recorded.

Obstetrics and Gynaecology

134 Early Diagnosis of Uterine Carcinoma

T. HEYNEMANN (*Med. Welt*, October 25th, 1930, p. 1541) urges full investigation of every case of abnormal uterine haemorrhage lest palliative treatment preclude the early diagnosis of cancer. Examination of the cervix should include inspection, since if the tumour is already palpable the condition is no longer limited to the uterus. Destruction of tissue and ulceration are practically diagnostic of carcinoma; erosion and swelling appear earlier, but may be due to other causes. Any destruction of tissue, swelling, tumour formation, or localized increase in vascularity should be investigated histologically. If on pressure with a sound any such suspicious area breaks down it should be considered malignant; if not, the diagnosis is doubtful. Leucoplakia is often a precursor of carcinoma. Diagnosis of early carcinoma of the cervical canal is difficult, since the only sign apart from haemorrhage may be swelling of the os. Carcinoma of the body is more favourable in respect of diagnosis and treatment; pain is an early symptom, but haemorrhage may be late. Any obstinate discharge in an elderly woman is suspicious, as is also irregular haemorrhage after the menopause where no cause can be found in the cervix. The necessary curettage in such cases must not be delayed.

135 Suppuration in Ovarian Cysts

V. RICHE and G. FAYOT (*Paris Méd.*, December 20th, 1930, p. 545) discuss the etiology, symptomatology, and treatment of suppurating ovarian cysts. Haematogenous infection is held to be very rare, except in the case of typhoid and paratyphoid fever. In 2 out of 7 cases treated by the authors the intestine was undoubtedly the primary cause of the infection, both cysts being intimately related to suppuration of the appendix. In 3 other cases the uterus was the infecting agency, and in the 2 remaining cases no cause was definitely determinable, though intestinal adhesions were discovered at the operations. The clinical history always begins with the onset of suppuration; in 6 out of the 7 cases the existence of any tumour was unsuspected until infection supervened. The condition was acute in 5 cases, pain, pyrexia, and signs of a peritoneal reaction being prominent manifestations. In the two chronic cases the onset was insidious, there being little or no pain, and very little constitutional disturbance. The authors commend the operative procedure of Mikulicz—extirpation in one stage, with abdominal drainage.

136 Chorion-Epithelioma without External Haemorrhage

D. v. RAISZ (*Zentralbl. f. Gynäk.*, November 15th, 1930, p. 2887) has found records of only four cases of chorion-epithelioma without utero-vaginal bleeding. He describes the case of a woman, aged 34, whose second pregnancy terminated spontaneously in the expulsion of a hydatidiform mole at four and a half months. Two years later three curettings were performed on account of irregular haemorrhage, but the microscopical findings were negative. More than two years of amenorrhoea followed. Sudden onset of abdominal pain, succeeded by rigors, and the discovery of a pelvic tumour, led to a diagnosis of internal haemorrhage from a ruptured ectopic gestation, with suppuration of the pelvic haematoma. An operation was deferred on account of the patient's poor condition and of the appearance of a purulent vaginal discharge, but was judged necessary seventeen days later, when it was found that a large chorion-epithelioma of the uterus had perforated and extended to the bladder. The amenorrhoea is explained as being due to the repeated curettings and to the fact that the chorion-epithelioma was originally intramural. The true pathology of the case was suspected, shortly before the operation, from the finding of a positive Zondek-Aschheim reaction in the urine. The case presents further evidence of the value of Aschheim's suggestion that this test should be performed at regular intervals in those patients who have given birth to a hydatidiform mole ; it is then likely to show the earliest sign of chorion-epithelioma.

Pathology

137 Haemolytic Anaemias

C. CASANO (*Arch. Path. e Clin. Med.*, November, 1930, p. 5), believing that many of the different pathological pictures of haemolytic anaemias represent transitional forms, and should not be regarded as clinical entities, has attempted to show their mutual relations. He describes in detail the clinical histories of twelve cases. The author considers that the haemolytic factor is a common denominator of an extensive group of morbid states which comprises haemolytic icterus, hypertrophic hepatitis with splenomegaly, Banti's disease, splenic anaemia, and pernicious anaemia; this group can be classed into subgroups according to the nature and degree of the excessive haemolysis occurring in these conditions. Pernicious anaemia (Biermer), which is primarily an affection of the bone marrow with an excessive destruction of constitutionally imperfect red cells, is to be distinguished from the other haemolytic anaemias and pernicious anaemia splenomegaly (Strümpell), where the spleen takes a more active share in the production of haemolysin and red cell destruction. Banti's disease, and splenic anaemia resulting from inhibition of erythropoiesis by the spleen, are regarded as a separate group. In explaining the etiological affinities of these syndromes, the abnormal activities of the splenic and extrasplenic reticulocytic systems are regarded as associated with constitutional debility.

138 Multiplicity of Antigens in B. anthracis

According to A. SORDELLI and V. DEULOFEU (*C. R. Soc. de Biologie*, December 12th, 1930, p. 721) agar cultures of *B. anthracis* contain a precipitinogen which is soluble in distilled water or saline solution, and which is precipitated by alcohol-sodium acetate. When purified by repeated precipitation it reacts like a carbohydrate, failing to give the biuret or Millon reaction, but yielding an intense Molisch reaction, and actively reducing copper salts after preliminary hydrolysis with weak sulphuric acid. Even when diluted 1 in 1,000,000 it gives a precipitin reaction with an anti-anthrax serum. Agar cultures of *B. anthracis* likewise contain a substance capable of fixing complement and soluble in distilled water or saline solution; it does not appear to be identical with the precipitinogen. The complement-fixing antigen is largely destroyed by treatment with acetone or with 96 per cent. alcohol, while the precipitating antigen is not markedly affected. The two antigens can be separated by saturating an extract of anthrax bacilli with ammonium sulphate; the precipitate, which is soluble in water, fixes complement, but has no precipitating power. On the other hand, repeated treatment of an extract of the bacilli with alcohol-sodium acetate yields a body which, as described above, has a high precipitating power, but which is unable to fix complement. The authors conclude, therefore, that there are at least two different antigens in *B. anthracis*.

139 Silicosis and Tuberculosis

In a discussion of the nature and sequels of silicosis T. H. BELT (*Canadian Med. Assoc. Journ.*, December, 1930, p. 802) expresses the view that it is not the fibrosis of silicotic lungs which favours the tuberculous infection, but simply the presence of siliceous dust. He records three cases in the early stages of silicosis, with much dust in the lungs but no appreciable degree of fibrosis; each of the three patients died with massive bilateral caseous tuberculous involvement. Silica does not stimulate the growth *in vitro* of tubercle bacilli, but *in vivo* its action in promoting a fatal type of tuberculosis is admitted. It has been suggested that the silica may surround the bacilli with a sheath of devitalized tissue, into which phagocytes do not readily penetrate, or that it may stimulate bacillary reproduction. Others have thought that by virtue of its colloidal properties silica absorbs antibodies, and so protects the organisms. Belt remarks that this dust, being ubiquitous, may perhaps play some part in bringing about tuberculous infection in ordinary life.

140 Experimental Uraemia

A. G. CHIARIELLO (*Rinascenza Medica*, October 1st, 1930, p. 471) has produced uraemia in dogs by simultaneous bilateral ligature of the ureters. Before the operation two determinations of the electrolytic equilibrium of the blood were made on separate days, and these were repeated every day after the operation, which was followed by rapid impairment of the general condition, with prostration, disinclination for food, and in some cases, a few hours before death, by short tonic and clonic convulsions. The animals survived rather over 48 hours, dying usually between the second and third days. The determination of calcium, magnesium, and sodium was made by the micro-method of Conderelli; chlorine by Bang's method modified by Conderelli; inorganic phosphorus by the method of Bell and Doisy; and potassium by the method of Kramer and Disdal modified by Conderelli. The results showed that there is no constant change in the amounts of chlorine, phosphorus, or magnesium, but that there is a slight decrease of calcium, an increase of sodium, and a remarkable increase of potassium. The author considers that the uraemic syndrome following the operation is not explained by these alterations of electrolytic equilibrium, and that the " hyperpotassiemie " is to be regarded as a reaction of the organism common to all toxic conditions rather than a specific fact of the uraemic syndrome.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

141 Erythema Nodosum and Pulmonary Tuberculosis

H. d'U. A. ENGELSGAARD (*Tidsskrift f. d. Norske Laegefor.*, December 1st, 1930, p. 1311) has investigated the records of Lyster Sanatorium from 1914 to 1929, and has found that among the 4,991 patients treated there for chronic pulmonary tuberculosis during this period there were 155, or 3.01 per cent., who gave a history of erythema nodosum, the diagnosis of which had been made by a doctor. In the earlier years no systematic inquiry had been made for such a history, and when such an inquiry was undertaken during 1929 it was found that as many as 21, or 5.9 per cent., of the 356 patients admitted this year gave a history of erythema nodosum. Of the 155, only 31 were males—a ratio of 1 to 4. The average age at which the erythema occurred was 21; there were only 21 under the age of 15, and only 20 over the age of 30. As many as 82 stated that they had tuberculous parents or brothers or sisters, and in most of these cases the patients were in contact with their sick relatives when the erythema appeared. In as many as 55 cases the pulmonary tuberculosis became clinically manifest within three months of the outbreak of the erythema; and in 75 cases (including the 55 already mentioned) there was an interval of less than a year between the outbreak of the erythema and of the first clinical manifestations of pulmonary tuberculosis. No fewer than 120 of these 155 patients were already in the second or third stage (Turban-Gerhardt) of the disease, and 84 were sputum-positive. It would therefore seem that among the patients with a history of erythema nodosum the severity of the subsequent pulmonary tuberculosis was on the average relatively great. Only in 6 cases, or 3.2 per cent., was there a history of rheumatic fever.

142 Abdominal Symptoms in Acute Rheumatism

J. J. J. GIRALDI (*Arch. Dis. in Child.*, December, 1930, p. 379) records six cases to illustrate the point that digestive disturbances precede the onset of acute rheumatism more frequently than is generally realized. He believes that this implies a peritoneal reaction to the infection. The abdominal symptoms may be so serious as to suggest the need of a surgical operation, but he holds that there is no justificaton at present for such a term as "rheumatic appendicitis," although an acute appendicular inflammation may be simulated. Acute peritonitis at the onset of an attack of acute rheumatism is, he believes, a very rare phenomenon, but there is not infrequently in such cases evidence of the invasion of the peritoneum by the rheumatic virus. Giraldi concludes that these abdominal manifestations are worthy of closer consideration than they have yet received, since they may throw some light on to the pathogenesis of this infection. The presumed immunity of the peritoneum to infection is, he adds, more apparent than real.

143 Syphilis in Morbus Cordis

A. S. WARTHIN (*Amer. Heart Journ.*, December, 1930, p. 163) believes that syphilis plays a more important part in the production of coronary disease than has hitherto been recognized. Among 1,675 necropsies on individuals over the age of 25 during the last twenty years, he has found that 408 males and 86 females showed microscopical lesions of active latent syphilis. These consisted of perivascular infiltrations of lymphocytes and plasma cells around small vessels, with obliteration of the arterioles and resultant fibrosis. Such lesions involved the aorta in 90 per cent. of cases, and rather less frequently the meninges, testis, and heart. Active syphilitic lesions of the larger coronary branches were infrequent, and it was only rarely that occlusion of the vessel, thrombosis, or infarction followed. On the other hand, comparison between the latent syphilitic and non-syphilitic groups showed in the former a greater frequency of arteriosclerosis, occlusion, and thrombosis of the coronary vessels; the incidence of angina pectoris and myocardial infarction was also higher among patients suffering from latent syphilis. The author concludes that syphilis predisposes secondarily to coronary and aortic sclerosis. Comparing the syphilitic and non-syphilitic necropsies, sudden cardiac death appeared five times more often in the former than in the latter group. In the majority of cases such sudden death was the result of cardiac insufficiency and dilatation. This had resulted from a slight diffuse interstitial myocarditis which had led to myocardial fibrosis.

144 Varicella with Blood Picture simulating Leukaemia

D. GOLDMAN (*Amer. Journ. Dis. Child.*, December, 1930, p. 1282) records the case of a boy, aged 3, who on the second day of chicken-pox had a blood count of 76,750 leucocytes per c.mm., 89 per cent. of which were lymphocytes. The smear closely resembled that of lymphatic leukaemia, the difference being that only 2.5 per cent. of the cells were the larger less mature forms, most of them being of the small lymphocyte group. The tonsils were somewhat enlarged, and there was slight generalized adenopathy. The chicken-pox lesions on the body were larger, and remained pustular somewhat longer than usual. Mild diarrhoea persisted through the acute stage and until the fourth week. At the height of the disease the temperature was 102.8°. A fortnight after admission the white cells numbered 79,350, and the lymphocyte percentage was 86.5. The urine and stools were normal, the Wassermann reaction was negative, and no enlarged glands were found in the mediastinum on *x*-ray examination. Thirty-three days after the onset, when the total white blood count and the differential count had returned to normal, vaccination was performed, but no lymphocytic reaction reappeared in the blood; the injection of typhoid vaccine also failed to produce any change. Although leukaemia-like blood pictures are frequently seen in whooping-cough, no similar observations have been recorded previously in varicella.

Surgery

145 The Diagnosis and Frequency of Tuberculosis of the Knee

H. SUNDT (*Tidsskrift f. d. Norske Laegefor.*, January 15th, 1931, p. 73) reviews 310 cases of disease of the knee admitted to the coast hospital at Stavern since 1911. Tuberculosis was diagnosed in 205 (66.1 per cent.), while the remainder were classed as non-tuberculous. While the ratio of tuberculous to non-tuberculous cases was thus 2 to 1 for the whole of the nineteen-year period, it was 1 to 1 during the last four years; of 95 patients admitted between July 1st, 1926, and June 30th, 1930, 48 were diagnosed as tuberculous and 47 as non-tuberculous. While this change in the relative numbers of tuberculous and non-tuberculous cases may have been partly determined by the fact that more adults were admitted to the hospital during the four-year period, the most important factor in the recognition of an increasing proportion of non-tuberculous cases was the greater frequency with which the knees were explored by operative means. During the whole of the nineteen-year period 131 patients underwent a therapeutic or a diagnostic operation, and as many as 116 of these patients were operated on after July, 1919. During this latter eleven-year period the microscopical examination eliminated many cases which would have been labelled as tuberculous on the strength of a post-operative macroscopical examination. The author considers that, as far as adults are concerned, there

should be no hesitation in performing exploratory arthrotomy in doubtful cases; even in the case of children such an operation may be justifiable. An exploratory excision has saved many a patient at the Stavern Hospital from years of conservative treatment for tuberculosis and from the depressing effects of such a diagnosis. Among the 205 patients found to be suffering from non-tuberculous diseases of the knee during the nineteen years under review, there were as many as 55 to whose disease no name could be put. There were 21 cases of syphilis, 11 of arthritis deformans, 7 of osteomyelitis, 3 of haemophilia, 3 of osteochondritis dissecans, 2 of hysteria, and one each of chondrosarcoma gigantocellulare genus, xantho-fibro-sarcoma, and chondropathia patellae.

146 Mixed Renal Tumours in Infancy and Childhood

Reporting 17 cases of malignant renal tumours in infants and children, H. L. KRETSCHMER and W. G. HIBBS (*Surg., Gynecol. and Obstet.*, January, 1931, p. 1) state that the true nature of the neoplasm was not recognized either at operation or at the first histological examination. While the kidney is not the only organ to be affected by malignancy in children, it is the most frequent site, and the commonest type is the mixed tumour of Wilms. The embryonal structure of these tumours is their most distinguishing feature, with a variety of tissue of abortive renal elements. Extensions and metastases are exceptional unless the original tumour is large. Regional involvement by extension is the usual method of growth. Sex is not often of diagnostic value, though in the present series 14 were males. The eldest child was 6½ years old and the youngest 3 months. The duration of onset varied from six days to twelve months. Pain in the region of the tumour was present in five cases. Frequency of urination was noted in only one instance, and haematuria, so common in adults, was never observed. Fever was present in nine cases. In ten the growth was on the left side (the reverse of the usual site), and in two there was bilateral involvement, an extremely rare occurrence. In every instance the tumour was palpable, and secondary anaemia was definitely present. The authors find that the diagnostic problem does not differ from that in adults. Cystoscopy and ureteral catheterization should be performed in all cases in order to obtain a pyelogram and to determine the function of the opposite kidney. The authors emphasize the importance of ensuring the presence and healthy functioning of a second kidney before performing nephrectomy, and give a warning about the possibility of bilateral involvement.

147 Adenocarcinomatous Growths of the Bladder

R. C. BEGG (*Brit. Journ. of Surg.*, January, 1931, p. 422) points out that colloid adenocarcinomata, resembling rectal growths may arise as primary tumours in the muscular wall of the upper part of the bladder, and that there is a general tendency for neoplasms in this region to assume the form of colloidal cancer. Primitive cells of the urachus are always present in the muscular wall at the bladder apex and, when active, form tumours of the intestinal type. Adenomatous and various kinds of cystic formations are commonly found in connexion with the lower end of the urachus, and show various degrees of close relationship to the colloid cancers. Begg concludes that all tumours of the bladder apex must be assumed to be of urachal origin from the point of view of treatment unless they can be proved to be otherwise. Radical operation is essential, comprising the removal of the umbilicus and of all the tissues between it and the bladder, as well as of a large portion of the vesical wall.

148 Thrombosis of the Axillary Vein

J. WULSTEN (*Zentralbl. f. Chir.*, January 10th, 1931, p. 72), who records an illustrative case, states that autochthonous thrombosis of the axillary vein is extremely rare. The first German case was reported by Schrötter in 1884, and the first French case by Meslay in 1894. No further cases were described until 1921, when Holländer recorded three more, though he stated that their causation was not clear. The principal factors in the production of axillary thrombosis appear to be, first, slowing and weakening of the circulation; secondly, infection; thirdly, damage to the endothelium; and, fourthly, change in the composition of the blood. Each of the factors may occur alone, but infection is indispensable for the formation of thrombosis. Treatment consists in rest of the limb. Wulsten's patient was a servant-girl, aged 17, who developed thrombosis of the left axillary vein due to hard work on a washing day and infection of an excoriation on the ring finger. Two months after the onset the patient had a violent attack of pain in the left hypochondrium with dyspnoea, suggesting pulmonary or splenic embolism, but these symptoms subsided in a week, and recovery took place under conservative treatment, although five months after the onset the patient's left arm was still larger than the right, and she was unable to do heavy work.

Therapeutics

149 The Prophylactic Value of Salicylates in Rheumatic Manifestations

C. B. LEECH (*Journ. Amer. Med. Assoc.*, September 27th, 1930, p. 932) has endeavoured to provide statistical evidence of the value of salicylates as a preventive of the recurrence of rheumatic disorders. To 67 children with potential heart disease and inactive rheumatic heart disease were given daily 20 grains of acetylsalicylic acid for a period of six months. The control group contained 79 children with similar potential and acquired rheumatic heart lesions. Fewer recurrences of chorea were noted in the experimental than in the control group. The control children did not do so well as the others in respect of gain in body weight, improvement in the heart rate, general bodily comfort, and actual physical capacity as judged by the functional classification based on ability to carry on normal activities without discomfort. Improvement in comfort seemed to play a part in allowing a more satisfactory gain in body weight. Almost without exception the children with recurrences of chorea lost weight before the recurrence, or only gained slightly. Apparently a child who gains weight normally is unlikely to develop chorea. Thus, by increasing the physical comfort of the child, and by facilitating gain in weight, the drug appears to reduce the incidence of attacks of chorea. The number of rheumatic recurrences in this series was too small, and the time too short, to allow accumulation of evidence in regard to any possible effect in preventing endocarditis as a sequel of chorea or other rheumatic manifestation. Leech concludes that his analysis shows that there is a definite advantage in giving daily rations of salicylates to children who represent actual or potential instances of rheumatic heart disease.

150 The Diet in Pulmonary Tuberculosis

J. OLSEN (*Ugeskrift for Laeger*, December 18th, 1930, p. 1194) has treated twenty-four cases of pulmonary tuberculosis on the following principles. The weakened organism should not be burdened with more food than is absolutely necessary; the dietary is therefore reduced to about 28–30 calories per kilo body weight. No trace of albumin in excess of the patient's needs should be given; his diet is therefore made as vegetarian as possible, the only animal foods allowed being butter, whipped cream, and buttermilk. The consumption of albumin is thus reduced to about 0.5 gram per kilo body weight, and the metabolism is diminished to the lowest possible limits. The motions are rendered as odourless as possible. The functions of the skin are promoted by means of heat and, when available, artificial light. The author treats his advanced cases by rest in bed, the patient being given on the first day as much boiled water flavoured with lemons as he likes, but nothing to eat. On the second day he may eat as much oatmeal gruel as he likes. On the third day this dietary is supplemented with oatmeal porridge and two slices of buttered toast. The menu is gradually increased till at the end of about a week he is receiving a sufficient supply of calories and proteins. Potatoes,

carrots, beans, and various other vegetables are given, also a little fruit. The patient drinks the juice of one lemon daily. Flavouring agents, tea, and coffee are strictly rationed, and milk, eggs, fish, and meat are forbidden. The author admits that in such a capricious disease as tuberculosis the many successes achieved among his twenty-four patients do not *per se* establish his case, which is that asepsis should replace antisepsis in medicine as it has done in surgery.

151 Treatment of Chorea

J. D. PILCHER and H. J. GERSTENBERGER (*Amer. Journ. Dis. Child.*, December 1930, p. 1239) report the occurrence of fever and a rash in the majority of children treated for chorea with phenyl-ethyl-hydantoin, a drug introduced in Germany about 1918 as a hypnotic and general sedative. In chorea the drug is administered in doses of from 0.1 to 0.15 gram (1½ to 2¼ grains) three times a day, in the case of patients up to 14 years old. Fever develops after six to nine days, rising gradually to 102°–104° F. a few days later, at which time a morbilliform rash appears, fading gradually in a few days as the temperature returns to normal. Severe cases react better than mild ones, and improvement usually follows promptly. Those cases that do not react are not appreciably benefited as a rule. It has been suggested that the reaction is of the nature of protein shock. Complications usually consist of irritation of the mucous membranes and more rarely of the urinary tract with blood in the urine; in one case there was an exudation into the lungs, causing a condition resembling pneumonia. These complications have not proved serious in children.

Anaesthetics

152 Percaine in Dental Operations

M. MELCHIOR (*Ugeskrift for Laeger*, November 20th, 1930, p. 1079) traces the development of local anaesthetics since the introduction of cocaine in 1884. He remarks that, with one exception, all the substitutes for cocaine which have been introduced since then have shared the same fate: great praise at first, followed by a waning reputation ending in oblivion. The one exception—novocain, introduced in 1905—has maintained its prestige. Percaine, introduced in 1929, has enjoyed the early enthusiasm of its predecessors. Various authorities in dentistry have praised the intensity and duration (up to several hours) of its action, but warning voices have already been raised with regard to its alleged toxicity, and its tendency to induce dilatation of blood vessels with consequent post-operative haemorrhage. After quoting the investigations of various authorities, the author refers to his own, which included a series of dental extractions effected on one side under percaine and on the opposite side and corresponding tooth under novocain. Percaine was first given in solutions of 0.5 to 1 per 1,000, but this strength was found to be totally inadequate. With a 2 per 1,000 solution of percaine, satisfactory anaesthesia was induced in only 7 out of a series of 12 cases, in five of which its action was only moderately successful, and in one of which it failed altogether. On the other hand, a 2 per cent. solution of novocain gave a more complete and reliable anaesthesia, and in but one case in this series was its action only moderately effective. The complete anaesthesia lasted about the same time, but the subsequent partial anaesthesia continued considerably longer in the percaine than in the novocain field of operation.

153 Infiltration Anaesthesia in Fractures

C. O. RICE (*Med. Journ. and Record*, November 5th, 1930, p. 423) advocates the employment of infiltration anaesthesia in the reduction of fractures, its only contraindication being the presence of infection or in compound fractures. Muscular relaxation as complete as under deep surgical anaesthesia can be obtained by infiltration with a local anaesthetic into the fracture gap so that the torn edges of the endosteum and periosteum become impregnated. By using a 1 per cent. procaine-adrenaline solution it was found that the period of anaesthesia was prolonged from four to ten times by the presence of adrenaline, and by slowly infiltrating ahead of the needle the pain associated with the process is minimized. Should anaesthesia and relaxation fail to occur after injecting from 5 to 10 c.cm. of the solution into the fracture gap, the periosteum of the proximal fragment is then infiltrated around its entire circumference. Whenever manipulation is undertaken to reduce a fracture this method of anaesthesia is preferable, as it is also if remanipulation of the fragments becomes necessary; better alignment can be obtained because the fragments can be adjusted under radioscopy. The method does not give rise to any untoward effects, nor does it interfere with healing.

154 Combination Anaesthesia

F. L. GRANDSTAFF (*Amer. Journ. of Surg.*, November, 1930, p. 300) records the result of 200 surgical cases in which complete or partial unconsciousness was produced by intravenous sodium iso-amyl-ethyl-barbituric acid (sodium amytal). The maximum dosage was 1 grain per 10 lb. of body weight, but allowances were made for certain factors such as temperature, thyroid dysfunction, age, cachexia, dehydration, and pre-operative medication. It was also found that patients with hypertension and arterio-sclerosis reacted more quickly to sodium amytal than others with a normal blood pressure, while alcoholics required the maximum dosage. The average dose required for laparotomy was 11 to 13 grains. Pre-operative treatment included 10 grains of chlorbutanol by mouth the night before, and again two hours before the operation, while morphine sulphate, with or without atropine sulphate, was given subcutaneously to all adult patients half an hour before the operation. A 10 per cent. solution of sodium amytal was injected intravenously, not more rapidly than 1 c.cm. per minute, and a supplementary anaesthesia of nitrous oxide and oxygen was afforded. The advantages of this form of anaesthesia were the diminishing of psychic trauma, and the reduction in quantity of inhalation anaesthetic required. Post-operative complaints of nausea and vomiting were absent in 95 per cent. of cases, and paresis of the intestinal tract, with flatulence, appeared to be less than with inhalation anaesthesia alone.

Obstetrics and Gynaecology

155 A Hormone Test for Early Pregnancy

Friedman has demonstrated that intravenous injection of 5 c.cm. of urine from a pregnant woman into a rabbit provokes ovulation as in a mouse subjected to the Aschheim-Zondek test, with this advantage, that in the former animal ovulation occurs within 24 hours, while in the latter it takes 100 hours. The results were so striking that P. F. SCHNEIDER (*Surg., Gynecol. and Obstet.*, January, 1931, p. 56) has employed this test in 100 cases to determine its clinical value. The factors involved in the test are enumerated. Into the marginal ear vein of a female rabbit, 12 to 14 weeks old, is injected from 5 to 7 c.cm. of the first morning urine passed by the woman being tested. The rabbit is killed 24 to 30 hours after the injection, and an immediate diagnosis is afforded by inspection of the ovaries. If the reaction is negative, these are found to be small and to be showing no change; if positive, one to fourteen corpora haemorrhagica and lutea are found in each ovary. Sometimes a positive result has been obtained in twelve hours. Schneider concludes that his results prove that the test is positive very early in pregnancy. It is simple, accurate, and can be completed within 24 hours; perfecting of the technique may reduce this time to 8 to 12 hours. The conditions from which early pregnancy can be differentiated by this test are mentioned. The rapid disappearance of the hormone after delivery, and the persistence of the reaction following incomplete abortion or foetal death, indicate its possible value in diagnosing retained decidual tissue after labour or incomplete abortion.

156 Induction of Labour

L. C. L. AVERILL (*New Zealand Med. Journ.*, December, 1930, p. 361) commends the induction of labour in New Zealand, where he thinks the children tend to be oversized. He considers quinine and pituitrin induction practically free from danger to the mother when properly conducted. It is especially advisable in cases of threatened disproportion in primiparae where the head remains floating at term. If the cervix is firm and well formed he uses the usual 0.5 c.cm. doses of B. P. Watson, but if it is soft and almost taken up before labour begins he gives 4-minim doses half-hourly for eight doses. Immediately any pains begin the injections are stopped. Averill believes that there is very little likelihood of the child being endangered.

157 Changes in the Ureter during Pregnancy

Dilatation of the ureter during pregnancy has been found at necropsy and operation, and thought to be concerned in the etiology of eclampsia. P. SCHUMACHER (*Arch. f. Gynäk.*, October 24th, 1930, p. 28), investigating by pyelography after the intravenous injection of uroselectan the anatomy of the ureter in physiological conditions in a hundred pregnant subjects, found that from the fifth month onwards there is invariably present a dilatation and diminution of tone in one or both ureters: both in 83, the right only in 15, and the left only in 2. This dilatation, which reaches a diameter of 2 to 2.5 cm., affects the abdominal portion only of the ureter, and by the eighth month is combined in four out of five cases with backward and outward displacement, and in the same proportion with kinking, either below the renal pelvis or at the junction of the upper and middle (abdominal) thirds.

158 Trial Labour in Contracted Pelvis

BROUHA (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, November, 1930, p. 739) reports a hundred trial labours in patients whose pelvic contraction was such that the antero-posterior diameter of the inlet ranged from 9.5 to 8 cm. In about one-half of the cases Caesarean section was avoided; the maternal mortality was *nil*, the foetal 4 per cent. The patients entered hospital as soon as labour commenced. Vaginal examination was made when the membranes ruptured (in order that prolapse of the cord, forbidding further expectant treatment, might be excluded), or at a cervical dilatation of 4-5 cm. When this was attained the membranes were artificially ruptured to shorten labour. With a conjugate of 95 cm. about one-fourth, and with one of 9 cm. nearly one-half, of the patients had eventually to have Caesarean section. PERY and MANGÉ (ibid., p. 661) describe a case illustrating a danger of trial labour in contracted pelvis. The conjugate was very slightly reduced, the sacral promontory being just accessible, but the foetus weighed 4.85 kilos. The patient, a 1-para aged 20, had been fourteen hours in labour when Caesarean section revealed an unsuspected tear in the lower uterine segment; this proved to be so friable that hysterectomy had to be performed.

Pathology

159 Immunology of Scarlet Fever

W. R. F. COLLIS and A. G. WATKINS (*Arch. of Dis. in Child.*, December, 1930, p. 441) report a case of scarlet fever in a boy, aged 2, which indicates that this infection is not a simple toxin-antitoxin phenomenon, and that the Dick test should be regarded merely as an indication of the presence of antitoxin in the patient's serum, and not as a guide to the general immunity of the patient to the specific streptococcus of the disease. Although the rash was quite transient, and none of the graver toxic symptoms of the scarlet fever syndrome supervened, yet the patient succumbed to a generalized septicaemic involvement of the spleen, lungs, kidneys, and serous cavities by the specific haemolytic streptococcus. The Dick reaction was negative at a time when it would have been expected to be positive. The authors distinguish two immunological states in scarlet fever: the specific toxic state, producing the usual exanthem, and those septic phenomena, such as pharyngitis, adenitis, otitis, and septicaemia, which are due to the specific organism. H. J. Parish and C. C. Okell have established the fact by animal experiments that the presence of antitoxin in the blood does not avert subsequent septicaemia. J. V. Cooke has shown that 90 per cent. of infants under the age of 6 months give a negative Dick reaction, and the present authors define this as the first or " pre-sensitive " stage; then comes a second or " hypersensitive " stage (Dick-positive); and finally, in older children and adults, whether they have had scarlet fever or not, a third " post-sensitive " stage, when there is sufficient antitoxin in the blood. The rash, vomiting, and pyrexia of scarlet fever would thus represent a hypersensitive response on the part of the patient to the specific toxin of the scarlatinal type of haemolytic streptococcus, rather than a general reaction to an infection with the organism itself. In the present case the child would appear to have reached the third or " post-sensitive " stage, his serum containing enough antitoxin to give a negative reaction to the Dick test, and to prevent the development of all the clinical symptoms of scarlet fever except the transient rash. The antitoxin did not, however, arrest the multiplication of the streptococcus in the blood, or avert the subsequent death from septicaemia complicated by acute nephritis.

160 Allergy and the Acid-Base Balance

Without disparaging the sensitization hypothesis of allergy, H. BECKMAN (*Journ. Amer. Med. Assoc.*, November 22nd, 1930, p. 1582) suggests that there may be an intimate connexion between allergy and the acid-base balance, and brings forward considerations which support this view. Diabetic patients, acidotic individuals, do not usually suffer from allergic diseases. Starvation, a cause of acidosis, appears to militate against allergy conditions, as also does pregnancy, during which the alkali reserve is sometimes much lowered. Other acidotic phenomena, such as acute pyrexia and the effects of sea voyages or sojourning at high altitudes, are also found to operate against allergic manifestations. Another argument cited is that the combination of whisky and acetylsalicylic acid, which causes a relative acidosis, is often effective in asthma. Beckman has found the administration of nitrohydrochloric acid to be curative in hay fever, and he suggests that ketogenic feeding should be tried in a carefully controlled series of asthma and hay fever cases. He believes that in the production of the allergic state other factors are concerned than sensitization alone.

161 Asbestosis Bodies in the Sputum

F. W. SIMSON and A. S. STRACHAN (*Journ. Path. and Bact.*, January, 1931, p. 1) report a series of examinations of the sputa of fifty workers in an asbestos mill, some of whom had also been exposed to this dust in other occupations. In forty-eight of these patients asbestosis bodies were found; they were as easily demonstrated by examining thick films directly as by the antiformin concentration method. In the absence of bronchial complications the sputum was always mucoid, and might even resemble egg albumen. In none of the sputa were tubercle bacilli demonstrated. A study of the intracellular asbestosis bodies in these cases suggested that they had been formed by the deposition on asbestos fibre of an iron-containing substance elaborated by the cell. The authors remark that it is obvious that the presence of these bodies in the sputum does not necessarily imply the existence of pulmonary fibrosis, although it does seem to indicate a reaction on the part of the alveolar epithelium. The stages in their development are as follows. The fibre becomes coated with a pale greenish-yellow or golden-yellow substance, which gives a prussian-blue reaction. This coating may be uniform, except at the extremities, where there is a bulbous enlargement. The deposit increases, and segmentation appears in some of the bodies; later the segmentation becomes deeper, and complete fracture of the fibre may occur with formation of the " crustacean " type of body.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

162 Epidemic Serous Meningitis

E. ECKSTEIN (*Klin. Woch.*, January 3rd, 1931, p. 22) states that in recent years there has been an increase in the number of cases of an affection of the nervous system which does not resemble any of the ordinary forms of cerebro-spinal disease. Clinical examination shows nuchal rigidity and Kernig's sign, but few other symptoms indicating cerebral localization apart from sluggish reaction of the pupil, unequal pupils, squint, and, rarely, facial paresis. On lumbar puncture the pressure is always increased, but the spinal fluid is clear, and only rarely turbid; it is invariably sterile. Gunther has collected 100 cases from the literature between 1908 and 1928. Epidemics of such cases have been observed by Wallgren in 1923; in New York and Boston by Brown and Symmers in 1925; in 1928 by Haessler in Leipzig, and also by Kaneko and Aoki in Japan in the same year. Eckstein himself has seen 13 cases of this kind between May and October, 1930, at the Düsseldorf children's clinic. The epidemic character of the attack is shown by the fact that six patients came from one suburb. The ages of the patients ranged between 10 months and 12 years. In six cases there was considerable increase in the tension of the cerebro-spinal fluid, while in the rest it was only slightly raised. In only two cases was the cell count above normal. Cultures of the fluid were all negative in each case. The whole of the children recovered after showing symptoms of more or less violent headache, vomiting, and, in the severe cases, nuchal rigidity. Apart from lumbar puncture, treatment was purely symptomatic. Eckstein agrees with Stoos in not regarding these cases as examples of poliomyelitis, since no instances of this disease occurred at Düsseldorf in 1930. On the other hand, Eckstein considers that epidemic serous meningitis is either an abortive form of encephalitis or a disease *sui generis*.

163 Sporadic Encephalitis

R. CITRON, R. SEIDMANN, and J. ZAPPERT (*Arch. f. Kinderheilk.*, November 28th, 1930, p. 39) classify 65 cases of encephalitis in children seen in hospital and private practice during the period 1920–29 into the following groups: 19 cases of typical epidemic encephalitis; 4 cases in which it was doubtful whether the diagnosis of epidemic encephalitis was correct or not; and 42 cases of other forms of encephalitis, including convulsive, meningeal, spastic, ataxic, tumour-like, bulbar, and myelitic. The typical cases of epidemic encephalitis continued to appear for some years after the epidemic and then entirely disappeared, no case having come under the authors' observation during the last four years. It is conceivable that the virus of epidemic encephalitis, in addition to causing an extensive epidemic, also has a special affinity for those parts of the brain involvement of which gives rise to the various forms of sporadic encephalitis mentioned. This hypothesis would explain the occurrence of numerous cases of encephalitis after the epidemic had subsided.

164 Lymphogranulomatosis in Children

The nature of lymphogranulomatosis being unknown, P. NOBÉCOURT, R. MARTIN, P. FOULON, R. LIÈGE, and J. STAVROPOULOS (*Ann. de Méd.*, December, 1930, p. 563) report three cases occurring in children, in the hope of elucidating its interrelation with tuberculosis. In two instances very large spleens were found. Since this organ is usually only slightly hypertrophied in lymphogranulomatosis, the finding proves that a marked splenomegaly does not eliminate the possibility of the latter. One patient presented an exceptional symptom, a chyliform pleurisy; guinea-pig inoculation with the effusion produced tuberculosis. Pruritus was not noted, and eosinophilia in the blood and tissues was also absent. These three cases, which are described in detail, exemplified the diagnostic difficulties encountered in certain atypical forms which, resembling the reticulo-endothelioses, can only be related to Sternberg's disease by the occasional appearance of the classical signs, the reticular and endothelial origin of Sternberg cells, the possibility of their mitosis, and the existence of cellular embolisms. The skin reactions are frequently negative to tuberculin (in 82 per cent. of cases) in children with lymphogranulomatosis. The involvement of the reticulo-endothelial tissue, the bacillary dissemination, and the granular cell changes lower the resistance and thus explain the frequent occurrence of associated tuberculosis.

165 Effects of Lead on Vision

F. G. PEDLEY (*Journ. Indust. Hygiene*, December, 1930, p. 359) comments on the effects of lead poisoning on vision, and reports a case of subhyaloid haemorrhage; he gives four other instances of eye involvement discovered among 100 cases of plumbism. He remarks that, since obscure eye disorders may occur in persons without any evidence of lead poisoning, it does not follow that an eye condition in a case of lead poisoning is necessarily due to this metal. Pedley's patient, a worker in lead aged 32, showed definite symptoms of plumbism, and was discharged to work after a month's treatment. Six months later he had an attack of severe pain in his left eye, which went rapidly blind; ophthalmoscopic examination revealed a typical subhyaloid haemorrhage. Six and a half months later the fundus was practically normal; only a few spots of brownish pigmentation were present, and this in spite of the fact that he had returned to work and still showed evidence of lead absorption. Although there were signs of arterial thickening, his blood pressure was normal, and renal function tests were negative. The author adds that the probability, statistically, of the plumbism and the subhyaloid haemorrhage having a causal relationship in this case is very strong, but the mere association of the two disorders does not constitute proof. In the other four cases—two of optic atrophy, one of neuro-retinitis, and one of probable retrobulbar neuritis—there was no positive proof that lead was the agent responsible for the conditions.

Surgery

166 Treatment of Post-Operative Colic due to Flatus

G. JEANNENEY (*Bordeaux Chirugical*, January, 1931, p. 46) calls attention to the fact that, following a reflex post-operative paresis of twenty-four to thirty-six hours during which gas accumulates in the intestines, the return of peristalsis is painful and the gas is expelled only after thirty-six or forty-eight hours. This slow expulsion is due to various causes: reflex intestinal paresis and spasms; absence of desire to defaecate owing to emptiness of the rectum; accumulation of intestinal gases; and the impossibility of efforts of expulsion due to tenderness of the wound. This condition may be prevented by omitting the usual active purgation on the eve of the operation, substituting for it a very light saline purgative two days earlier, or administering a small oily enema on the day before operation. A powder containing agar-agar and pulv. belladonnae promotes the absorption of gas in the large intestine. Rough handling of the intestines during the operation must be avoided. After the operation the abdominal wall should be anaesthetized with applications of a 20 per cent. solution of quinine-urea; drop rectal injections containing traces of laudanum should be given instead of morphine. Thirty hours later, peristalsis should be encouraged by hypodermic injections of pituitary

extract and of hypertonic serum. The very satisfactory results obtained by the serum led Jeanneney to try small enemas of concentrated saline solutions, with equally good results. In fatigued patients, one or two intravenous injections of hypertonic serum are also given. Rectal injections of hypertonic fluid cause a rapid reflex contraction, with relaxation of the sphincters and a quick evacuation of the rectal contents.

167 Low Backache

Discussing the etiology of low backache, C. W. B. LITTLEJOHN (*Journ. of the College of Surgeons of Australasia*, November, 1930, p. 201) calls attention to the number of cases in which it is caused by strains of the lower spinal articulations. The disability is too often prolonged by delay in instituting the appropriate treatment, by toxic absorption, and by the maintenance of a faulty posture. Good results usually follow appropriate treatment, which includes manipulation, postural exercises, the elimination of toxic foci, temporary fixation in plaster, and operative procedures. The author enumerates respectively the chief diagnostic points in sacro-iliac subluxation, sacro-iliac strain and arthritis, lumbo-sacral subluxation or spondylolisthesis, central and lateral lumbo-sacral strain, and transverse arthritis, and indicates the appropriate treatment in each instance. Factors which render this region of the spine particularly liable to injury are the adoption of the erect attitude, with the accompanying evolutionary changes; variation in the anatomical types; and the physical degeneration which accompanies civilization.

168 H. W. MEYERDING (*Journ. of Bone and Joint Surg.*, January, 1931, p. 39) considers subluxation of the lumbar spine a congenital or a traumatic factor in the etiology of pain in the lower part of the back and of deformity. It has been found to occur quite as frequently in men as in women, about 62 per cent. of the cases under review being in men. It may be caused by trauma, obesity, pregnancy, or occupational strain, and in many instances congenital defects, such as variations of the fifth lumbar vertebra and lumbar-sacral joint, were noted. In about 38 per cent. of cases the cause was ascribed to trauma, and the average age was found to be 37. Clinical signs of spondylolisthesis are lordosis with a shortened torso, and limited spinal motion and depression at the fifth lumbar vertebra with prominence of the upper posterior border of the sacrum. The chief symptom is backache, which is relieved by rest and aggravated by work; there may also be referred pain to the hips and legs. Neurological signs are usually paresis and modified sensation, limited as a rule to the fifth lumbar vertebra and the first sacral segment. Stereoscopic or lateral view *x*-ray photographs will aid the diagnosis. Treatment varies according to the condition and circumstances of the patient; in some cases a well-fitted body cast will give security and comfort. Obese patients require a corset with reinforced steel stays, while for those who must continue at work an operation is the most rapid and permanent treatment. This consists of fusion of the third, fourth, and fifth lumbar vertebrae and the upper part of the sacrum, by exposing the spinous processes and the laminae of these parts and using multiple bone grafts.

169 Treatment of Stone in the Solitary Kidney and Ureter

C. P. MATHÉ (*Surg., Gynecol. and Obstet.*, January, 1931, p. 79) states that the treatment of stone in the solitary kidney and ureter comprises many prophylactic measures such as the early removal of unilateral calculi and nephrectomy for calculus pyonephrosis; removal of all foci of infection in other parts of the body; the elimination of stasis in the upper and lower urinary tract; eradication of infection in the remaining kidney; and careful regulation of the diet and the life generally. Five cases are reported emphasizing the importance of the early removal of stone from the solitary kidney before renal insufficiency and advanced infection have set in. Early lithotomy on the solitary kidney and ureter is well tolerated, and followed by practically no shock. Cystoscopically controlled attempts to promote the passage of stones from the solitary renal pelvis or ureter are dangerous, since the stone may obstruct the ureter. In cases of chronic pyelonephritis this obstruction is likely to cause bacterial invasion of the parenchyma with resulting destruction of the kidney, anuria, uraemia, and death. Surgical removal of a stone from the solitary kidney and ureter requires exact technique and keen judgement. Preliminary drainage and lavage should be performed through the ureteral catheter. A wide incision to permit good exposure should be made; the kidney must be handled gently, the blood vessels safeguarded, and the incision in the pelvis and ureter left unsutured in order to ensure drainage. A combined pyelotomy and nephrotomy incision ensures removal of the stone and the tendency to recurrence is minimized. Decapsulation should be performed to avoid post-operative renal congestion.

Therapeutics

170 Treatment of Sprue

A. BASSLER and J. R. LUTZ (*Journ. Amer. Med. Assoc.*, December 27th, 1930, p. 1961) report ten cases of sprue in which gratifying results followed the combined employment of a high liver diet with fruits, vegetables, and milk product additions; transduodenal lavage is also strongly recommended. The correction of bacterial fermentation in the intestines is simultaneously effected, and residence in cool climates is arranged when possible. The authors found that their patients responded even better and more swiftly to liver treatment than is the case in pernicious anaemia, the proportion of ultimate recovery being higher also. They had obtained previously but little success with blood transfusion, injections of iron preparations, and various other forms of dieting. Transduodenal lavages with hypertonic saline solutions containing 9 grams each of sodium sulphate and chloride in a litre of water at 104° F. were used before bedtime to clear out the fermenting residue of the day's meals. As a rule the quantity introduced rarely exceeded 500 c.cm., and as improvement progressed the bulk or frequency of the washings was diminished. When practicable, cod-liver oil was added to the diet, with orange, pineapple, and other fruit juices, also tomatoes, lettuce, and fats.

171 Bacteriophage Therapy in Chancroid

J. J. A. BASSET (*Thèse de Paris*, 1930, No. 383) records seven cases of chancroid treated by injections into the buboes of a mixture of numerous bacteriophage strains which caused lysis of different varieties of streptococci, staphylococci, *B. coli*, *B. typhosus*, *B. paratyphosus*, and all other forms of lytic virus usually employed in laboratories. Compresses containing this mixture were also applied to the chancres. The results were encouraging, inasmuch as cure was obtained in the case of buboes after one to three injections in an average of eight days, whereas the chancres took much longer to heal. No general reactions resulted from the injections, but two patients showed a transient local reaction consisting in an aggravation of the inflammation.

172 Nirvanol in Chorea

O. R. TISDALL (*Arch. of Dis. in Child.*, December, 1930, p. 397) records conclusions based on the treatment of 29 cases of chorea with nirvanol and rest, no other form of medication being employed. The daily dose given by the mouth was 0.3 gram usually, but in 7 cases it was increased to 0.45 gram with no ill effects. Of the 29 cases, 15 completely lost their symptoms within six weeks; there was marked betterment in 9, and failure in 5. Of the 15 "cured" cases, however, 6 relapsed within six years or less, while 9 remained free from chorea permanently. Tisdall concludes, therefore, that nirvanol must not be considered a specific cure for chorea, although in acute forms its immediate results are encouraging. The heart remains unaffected by it. All patients should be confined to bed during the progress of treatment. Exposure to sunlight during the administration of nirvanol has been

reported by Keller to cause serious secondary reactions, but Tisdall found no such risk to be present in two cases in his series. He mentions, however, that a febrile reaction is usually present with a rash about seven to twelve days after the start of the administration; eosinophilia was an almost constant phenomenon, whether there was a noticeable reaction otherwise or not, and leucopenia was fairly common.

Neurology and Psychology

173 Etiology of Epilepsy

On the basis of his personal studies and data from the literature, D. M. OLKON (*Journ. Nerv. and Ment. Dis.*, November, 1930, p. 538) concludes that, in the vast majority of cases, genuine (or true) epilepsy is due to exogenic rather than endogenic influences, and that cerebral capillary haemorrhages are probably etiological factors. A study was made of the capillary systems of 17 infants delivered by Caesarean section, of a large number of others who had been delivered normally, and of many whose birth had been complicated by dystocia and forceps delivery; these last two complications gave rise to distortions of the cutaneous capillaries with capillary haemorrhage, while in the Caesarean section cases no such changes were detected. Even in infants born normally subcutaneous capillary haemorrhages were often present; they corresponded generally to the capillary changes noted in experimental animals. The more protracted and pathological the delivery process, the greater seemed to be the tendency to capillary haemorrhage. Experiments on 18 healthy dogs showed that a convulsion was followed by permanent sequels in the circulatory and respiratory systems. It is generally believed that genuine (or true) epilepsy may be caused by disturbances of metabolism, and that the metabolic derangement of the body and brain sets in early in epileptics. It is accepted that Jacksonian epilepsy is a sequel to cerebral trauma. Since Jacksonian and idiopathic epilepsy do not differ in the sum total of convulsive phenomena, Olkon considers that the latter may likewise be caused by trauma. Trauma, though not definitely observed, as in the Jacksonian type, with precise localization in the brain, is present nevertheless in the capillary system following dystocia and forceps delivery. Olkon suggests, therefore, that brain trauma sustained at birth, with its capillary haemorrhages, though slight, is adequate to give rise to the beginning of a metabolic imbalance in susceptible individuals and thus lead to the convulsive state.

174 Tumours involving the Cauda Equina

I. M. ALLEN (*Journ. Neurol. and Psychopathol.*, October, 1930, p. 111) reviews the clinical features and differential diagnosis of tumours of the cauda equina, the study being confined to those cases in which the presence, nature, and position of the tumour had been established either at operation or necropsy. A successful study of these growths depends on the separation of those in which the cauda equina alone is involved from those in which the conus and structures above it are also affected. The symptomatology of these tumours is described in detail; the importance of pain as the initial symptom is confirmed, and the fact is emphasized that pain in the back may be a more common initial symptom. Sudden and serious involvement of the sphincters at any stage of the disease indicates implication of the conus. Only in well-developed cases is any particular type of symptomatology found. Important points, however, are the asymmetrical character of the clinical findings, and the appearance of changes bilaterally in one or more subjective and objective sensations, motor functions, and reflexes. Diagnostic errors are chiefly made at the onset. Therefore, at this stage it is essential that ordinary clinical investigation be supplemented by special methods, particularly by a detailed examination of the cerebro-spinal fluid. When one or more physical signs are established, their bilateral distribution is suggestive; further investigations may be necessary to confirm the diagnosis and to localize the lesion. The results of treatment at different stages prove that success depends on early diagnosis. Delay in investigation and postponement of surgical measures till a clear clinical picture is present usually means waiting until the case is hopeless. The duration of the disease ranges from 3 months to 20 years from the onset, depending on the character of the tumour and the structures involved. The tendency of these tumours to affect the nerve roots in a haphazard manner is mentioned; the effect of this characteristic renders impossible a study of such neoplasms according to recognized syndromes. The various conditions from which tumours of the cauda equina must be differentiated are enumerated.

175 Juvenile Dementia Paralytica

W. C. MENNINGER (*Journ. Amer. Med. Assoc.*, November 15th, 1930, p. 1499) considers that juvenile dementia paralytica is the interaction of an immature, rapidly developing personality and a slowly progressing infection with early distortion, and later inhibition of development; eventually there is a breaking down of the complete biological unit. The existence of a "preparetic stage" is controverted, and asymptomatic cases are regarded as early dementia paralytica. A series of 40 patients, comprising 15 males and 25 females, is reported. The usual age of onset is between the 10th and 15th years; the duration of the disease ranges from two to ten years, averaging four years, which is longer than in the adult. Though the primary infection (usually syphilitic) may be acquired, all the cases under review were congenital. Most of the patients showed mental and physical retardation, and infantilism was a frequent symptom. Organic changes were more common and pronounced than in the adult; cranial nerve involvement and pupillary changes were greater and convulsions more frequent. Motor symptoms appeared earlier, and focal signs, such as hemiplegias and Jacksonian attacks, were more often obvious. All the cases tended to present the clinical picture of simple extreme dementia. Menninger remarks that the intellectual development depends on the patient's age when the cerebral damage becomes apparent: early, varying grades of feeble-mindedness are present; later, in all cases, deterioration or retrogression to dementia occurs. Treatment is without effect; presumably, the brain is so rapidly invaded, and the damage is so extensive, that the strongest therapeutic agents are ineffective, however relatively early they are employed.

Obstetrics and Gynaecology

176 Dangers of Cervical Caesarean Section

E. ROTTHAUS (*Zentralbl. f. Gynäk.*, January 10th, 1931, p. 89) and K. JÄGER (ibid., p. 94) describe cases illustrating respectively an immediate and a remote danger of transperitoneal cervical Caesarean section. In Rotthaus's case, one of placenta praevia, abundant venous haemorrhage occurred between the bladder and cervix as these were being separated, and proved fatal. Rotthaus recommends that in such circumstances, or when varices are present, the abdominal incision should be extended upwards and a corporeal section performed. In Jäger's patient, six years after cervical Caesarean section for placenta praevia, rupture of the pregnant uterus at term was diagnosed by palpation through the herniated abdominal scar; the classical signs were absent. Catheterization before operation gave issue to pure blood, and a large vesical tear had to be sutured after hysterectomy. The patient recovered. It is pointed out that clinical features of rupture of a "Caesarean scar" are frequently atypical and deceptive—in several cases the diagnosis having been first made at operation some days later; that more than 20 cases of uterine rupture in labour after cervical section have been reported; that this operation entails a special risk of rupture of the bladder as well as of the uterus in subsequent labours; and that during and immediately before these labours specially careful supervision is called for.

177 The Perivaginal Fascia in Nulliparae

B. H. GOFF (*Surg., Gynecol. and Obstet.*, January, 1931, p. 32) records a study of the perivaginal fascia in a nullipara, basing his conclusions on a classification of fascia into two types: the areolar, which surrounds and aids in maintaining the viscera, blood vessels, and nerves in normal positions; and the denser type which sheathes and unites the voluntary muscles. Goff found no fascia in the walls of the vagina, urethra, bladder, and rectum, and none between the anterior vaginal wall and the urethra. A thin layer of areolar fascia lies between the vagina and the bladder, and a similar layer between the posterior vaginal wall and rectum. These vesico-vaginal and recto-vaginal fasciae unite at the sides of the vagina to form the perivaginal fascia, which is part of the intra-pelvic fascia. Its areolar character renders its dissection impossible as an individual layer, and its use as such in vaginal plastic operations. If used at all, it must be in conjunction with the overlying vaginal wall. No other fascia is available for use in the surgical correction of cystocele, rectocele, and urethrocele, and the successful treatment of these conditions depends on the utilization of the tissues of the vaginal wall rather than on the use of the fragile fascia which surrounds it. Goff believes that the adoption of the established histology of the tissues in and about the vagina, urethra, bladder, and rectum will lead to a clearer understanding of the problems of the conditions named above.

178 Haemorrhage in Delivery of Hydatidiform Mole

BAUX (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, November, 1930, p. 697) records the case of a 1-para, aged 23, who after four months' amenorrhoea was found to have albuminuria, oedema, and uterine enlargement corresponding to seven months' gestation; foetal parts or sounds were not detected. A diagnosis of hydatidiform mole having been made, it was found impossible on account of severe bleeding to introduce Hegar's sounds or a balloon. Two Krause bougies were passed into the uterus, but the cervix did not dilate, and bleeding from the womb continued to be alarming. Accordingly, Delmas's method of rapid accouchement under spinal anaesthesia was adopted as an alternative to hysterectomy. Full dilatation was rapidly secured digitally without difficulty or haemorrhage, and evacuation of the uterus was easy.

179 Chlorotic Anaemia of Pregnancy

M. B. STRAUSS (*Amer. Journ. of Med. Sci.*, December, 1930, p. 818) records three cases of the "chlorotic" type of pregnancy anaemia. All the patients had a chlorotic blood picture, and complete and persistent achylia gastrica; they responded well to iron therapy, and no other treatment was found necessary. The anaemia was clearly attributable to the pregnancy; the achlorhydria presumably prevented the absorption of adequate amounts of iron from the normal diet, and the additional strain of the pregnancy was more than the body could deal with.

Pathology.

180 The Relationship of Herpes Zoster and Varicella

A. NETTER and A. URBAIN (*Ann. de l'Inst. Pasteur*, January, 1931, p. 17) have for the last ten years been examining, by means of the complement-fixation test, the serum of patients suffering from herpes zoster, using as an antigen the vesicular fluid, or, better still, a suspension of the vesicular crusts. In the first 100 cases examined the serum was found to contain antibodies in 93 per cent. Over 150 cases have now been examined, apparently with similar results. More than half of the cases have been of the secondary type, occurring in the course of various local and general diseases, and intoxications such as arsenical or bismuth poisoning. No fewer than 28 of the patients with secondary zona were tuberculous. From the serological point of view there seems to be no difference between the primary and the secondary type; both lead to the development of specific antibodies reacting with the same antigen. With regard to the relation between herpes zoster and varicella, the authors have now collected over 230 observations on the development of one of these diseases after exposure to the other. The complement-fixation reaction has shown that the serum of patients with chicken-pox reacts to an antigen of zona crusts exactly as it does to an antigen of varicella crusts; conversely, the serum of a zona patient reacts equally well with an antigen of zona and of varicella crusts. This holds true not only for the serum of patients with primary herpes zoster, but also for those with zoster coming on after encephalitis, vaccination, arsenical poisoning, and so on. The authors therefore conclude that the virus of varicella and of zoster are antigenically alike. The varicella virus appears to be more infective, and to leave behind it more solid immunity than the zona virus; these differences, however, are no greater than those between variola virus and vaccinia virus, which are known to be antigenically the same.

181 Enhancement of Infective Power of Bacteria

M. PIJOAN (*Journ. Exper. Med.*, January, 1931, p. 37) has confirmed and extended the work of Duran-Reynals, who showed the existence in certain organs of a substance that was capable of enhancing the infective power of staphylococci and vaccinia virus. This substance is present in greatest amount in extracts of the testicle and epididymis, but extracts of the kidney, skin, brain, and placenta are active to some extent. Extracts of retina, muscle, and ovary do not modify the infection, whereas those of blood, spleen, and bone marrow may interfere with, and even suppress, the activity of the infective agent. The Reynals factor is not species-specific. In the work now recorded it was found that the addition of testicular extract greatly increased the local lesion produced by the inoculation of numerous species of bacteria into the skin of mice and rats, and not infrequently led to a fatal result. Kidney extract, when tested with staphylococci injected intracutaneously into rabbits, proved to be less active; spleen extract led, on the other hand, to a certain diminution of the lesions, as compared with the Ringer controls. D. C. HOFFMAN (ibid., p. 43) found that the addition of testicular extract to suspensions of herpes virus, vesicular stomatitis virus, Borna virus, and vaccinia virus increased their pathogenic action very markedly. The Reynals factor enhanced the virulence of strong viruses; weak viruses behaved like strong ones. The vesicular stomatitis virus was rendered capable of infecting resistant species such as rabbits, or resistant tissues such as the abdominal skin of guinea-pigs.

182 Nephritis Caused by Trypaflavine

M. LEVRAT and A. BADINAND (*Journ. de Méd. de Lyon*, January 5th, 1931, p. 25) have studied the effects of intravenous injections of trypaflavine in rabbits. Intoxication is characterized by a rise in the blood urea content corresponding to the severity of the renal lesion, and a considerable degree of acute nephritis was invariably found. The uraemia appears to be due to the renal lesions, but it may be caused also by an excess of urea resulting from toxic disintegration of the tissues, especially of the muscles. The authors remark that an exhaustive investigation of the renal function in patients undergoing trypaflavine treatment is indicated, in order to determine whether the experimental results in rabbits are applicable to man; the recent publication of two cases of acute uraemic nephritis during trypaflavine treatment appears to suggest this possibility. Another investigator who used guinea-pigs has found intense glomerulo-nephritis, and in those which survived for a sufficient time there were extensive hepatic lesions. Apparently the toxicity of trypaflavine varies with the degree of purity. Levrat and Badinand find that the toxic effect was delayed, death supervening suddenly after a latent period of from four to seven days. They recommend a preliminary examination of the urine with a test of renal function, and that only moderate doses of trypaflavine should be used. Previous renal lesions may account for toxic symptoms supervening after the injection of moderate doses. Variations in the purity of the product are also important.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

183 Auricular Fibrillation in Heart Disease

W. M. FOWLER and C. W. BALDRIDGE (*Amer. Heart Journ.*, December, 1930, p. 183) report ten cases in which auricular fibrillation was the only symptom of cardiac disease. The ages of the patients ranged from 17 to 34, and all except two were under 30. In seven cases the fibrillation was paroxysmal, while in three it had persisted for periods of two weeks, five months, and two and a half years respectively, sinus rhythm being restored by quinidine when it would otherwise probably have persisted. A post-mortem examination was eventually performed on the patient who had had fibrillation for two and a half years, and the heart was reported as being grossly and microscopically normal. In one case the fibrillation was attributed to the removal of wax from the ear; in another to exertion; in four to alcoholism; in one to carbon monoxide; in one to ether and nitrous oxide anaesthesia; and in two patients to having been engaged in work at petrol stations. The authors have collected 35 cases from the literature in which fibrillation was the only sign of cardiac damage, and discuss the etiology. Abdominal disease and alcoholism were the most common exciting causes; in the first group it is suggested that a reflex stimulation over the vagus contributed to the production of fibrillation.

184 Induction of Diuresis in Nephritis

W. EWIG (*Deut. med. Woch.*, January 9th, 1931, p. 51) states that diathermy applied over the region of the kidneys increases their blood supply and thus causes diuresis. In normal persons he has produced a striking diuresis in this way, there being a direct action on the kidney, as shown by an experiment where the urine was collected from ureteric catheters during diathermy on one side only. Not only is more water excreted, but though the concentration of the urine becomes less, the total excretion of chloride and nitrogen is increased. Some of the results in severe cases of acute nephritis with anuria and convulsions have been most striking, the method used being the application of an electrode measuring 30 cm. square to the abdomen, and one measuring 20 by 15 cm. over each kidney, a 3 to 4 ampere current being passed through for two hours at a time twice daily. Illustrative cases are described where immediate diuresis occurred, the convulsions ceased, and the nephritis cleared up in a few days. In the convulsive cases diathermy can be applied to the head at the same time. The results in subacute and chronic types of nephritis are said to have been much less satisfactory.

185 Chronic Bromide Poisoning

C. P. WAGNER and D. ELIZABETH BUNBURY (*Journ. Amer. Med. Assoc.*, December 6th, 1930, p. 1725), impressed by the incidence of bromide intoxication among psychotic patients admitted to the Colorado Psychopathic Hospital, record observations upon 1,000 consecutive cases in which routine determinations of the bromide content of the blood were made. In 77 the serum showed the presence of bromide in concentrations of 75 mg. per 100 c.cm. and over, and in 44 of these the mental symptoms were due to, and increased by, the bromide. The authors consider that serum concentrations of 200 mg. per 100 c.cm. should be regarded as toxic; the figure should be kept below this point, since in higher concentrations some evidence of toxicity usually manifests itself, taking the form of increased restlessness, hallucinations, and apprehension, with physical symptoms of tremor, speech defect, ataxia, and finally stupor. In concentrations over 300 mg. life may be endangered, and the delirium may mask any underlying psychotic condition. Treatment is mainly supportive and eliminative, the diet and fluid intake being increased. Sodium chloride in 15-grain doses three times daily by the mouth increases bromide elimination. In patients showing evidence of debility and dehydration, however, its administration is undesirable, since it liberates the bromide from the tissues too rapidly for elimination by the kidneys, causing a rise in the blood bromide content, and possibly a fatal exacerbation of the toxic symptoms. Where there is impairment of the excretory or circulatory functions the administration of bromide must be carefully watched, but untoward mental symptoms can be minimized if the physician is on the look out for any exacerbation, or ascertains the bromide concentration in the blood.

186 Prophylaxis of Epidemic Poliomyelitis

E. MORO (*Klin. Woch.*, December 20th, 1930, p. 2383) suggests that when poliomyelitis threatens to assume an epidemic character prophylactic injections should be at once started, consisting not of convalescent serum, which is usually not available, but of normal adult blood or serum. Experimental work has shown that the blood of most adults is bactericidal; it is therefore extremely probable, although not absolutely proved, that it possesses a protective power. It is unknown how long such passive immunity lasts, but on the analogy of measles convalescent serum it would be about four weeks; a second injection would therefore be required at the end of this period. Since children under 5 years of age are most susceptible to poliomyelitis, Moro thinks that the injections might well be confined to children between 6 months and 5 years old. In urban districts where the majority of adults—that is, persons over the age of 15—possess specific protective substances in their blood, at least 20 c.cm. of the parents' blood should be injected intramuscularly. In rural districts in which there is infrequent communication with towns the immunity of adults is at most 50 per cent., and the protective power of the blood of such adults is consequently uncertain. It is desirable, therefore, that in such cases blood should be obtained from adults living in towns. Moro suggests that serum centres should be established, as in the case of measles convalescent serum.

187 Spastic Hemiplegia following Post-Vaccinal Encephalitis

J. DUKEN (*Zeit. f. Kinderheilk.*, November 22nd, 1930, p. 293) records two cases in female infants aged 18 months and 13 months respectively. In the first, convulsions developed on the tenth day after vaccination, followed two days later by right hemiplegia, which disappeared in about a week's time after intravenous and intramuscular injection of 200 c.cm. of the mother's and aunt's blood. Complete recovery ensued. In the second case right hemiplegia developed within a month after vaccination, which had been followed by high fever, though there were no convulsions. No special treatment was adopted, and the hemiplegia became spastic and permanent.

188 Post-Traumatic Mental Symptoms

Dealing solely with mining accidents, M. J. COHEN (*Journ. Med. Assoc. of South Africa*, December 13th, 1930, p. 724) analyses these conditions in 105 cases. Psychoses are rare sequels of mine injuries, while psychoneuroses are common; their etiology here is the same as in any other occupation, the desire for compensation and the abandonment of dangerous work being important factors. The two main nervous affections after trauma are anxiety neurosis and hysteria. The headaches and other head sensations of the non-organic and organic sequels of trauma are differentiated; they have both diagnostic and prognostic importance. In the first, the sensations are subjective, and are due to suggestion and to vasomotor changes; in the second, some actual damage to the scalp,

skull, membranes, or brain may be present. Sometimes an injury to a miner reveals coexisting organic disease, such as syphilis. Treatment of these mental sequels may consist of rest, suggestion, and other forms of psychotherapy. Prognosis depends much on the patient's reaction to the awarding of compensation and his response to treatment. ALICE COX (ibid., p. 728) reports a small series of cases which illustrate some of the types discussed by Cohen.

189 Toxic Diphtheria

A. HOTTINGER (*Schweiz. med. Woch.*, January 3rd, 1931, p. 13) illustrates the great frequency of toxic diphtheria by the fact that out of 796 cases of diphtheria recently admitted to the clinic for infectious diseases at Düsseldorf, 40 (of which 20 were fatal) were examples of this kind. The cases of laryngeal diphtheria numbered only 25, and only 5 were fatal. The attacks were remarkably refractory to large doses of antitoxin, and treatment by convalescent serum alone, or in combination with antitoxin as recommended by Hentschel, was also unsuccessful.

Surgery

190 Intrathoracic Tumours

T. C. DAVISON (*Arch. of Surg.*, Part II, December, 1930, p. 1393) divides intrathoracic tumours into the primary, which may be benign or malignant, and the secondary, which are nearly always malignant. Benign primary tumours include lipoma, chondroma, osteoma, fibropapilloma, and dermoids; they may occur in the mediastinum or in the lungs. They may cause pressure symptoms, and sometimes pulmonary suppuration and sepsis by obstruction of the bronchi. Of malignant intrathoracic tumours, carcinoma is the most frequent, and may be diagnosed by *x* rays and the bronchoscope. Primary carcinoma of the lung may be endobronchial or parenchymatous, the former being the more common. It occurs more frequently in men than in women, chronic irritation being the principal cause, due to the inhalation of irritating substances such as coal dust, gases, and tobacco smoke. It is most common after the age of 60, and about 80 per cent. of cases involve the upper lobes of the lungs. Secondary tumours of the lung are metastases from some distant primary focus; they may be single or multiple, and may grow into large spheroidal masses. The symptoms of cancer of the lung resemble those of tuberculosis, and diagnosis must be made by means of the bronchoscope and *x*-ray examination. Benign tumours of the chest should be removed surgically whenever accessible, and early operation is essential for primary malignant growths. After removal of the tumour-bearing area, healing should occur without infection. The so-called dead space is obliterated by the elevation of the diaphragm, the contraction of the thoracic wall, and possibly by a physiological emphysema of the rest of the pulmonary tissue. In extensive operative procedures on the lung a two-stage operation is advised. In late cases partial collapse of the affected lung, evacuation of secondary abscess, and resection of a large portion of the tumour will give temporary relief.

191 Injection Treatment of Varicose Veins

J. P. COLL (*Med. Journ. and Record*, December 17th, 1930, p. 578) reviews the recent developments in the choice of solutions and technique in the treatment of varicose veins by the injection of hypertonic fluids. The method has distinct advantages over surgical treatment in that the period of incapacity is much shorter, often scarcely interfering with daily duties; it is less painful, cheaper, and gives better cosmetic results. The solutions in general use are: (1) a 20 per cent. sterilized solution of sodium chloride, of which from 2 to 12 c.cm. are injected at various points; (2) a 20 per cent. solution of sodium salicylate, of which 3 to 5 c.cm. are injected; (3) 2 to 12 c.cm. of 75 per cent. glucose, either alone or with 5 per cent. sucrose; (4) a solution of 0.4 gram of quinine dihydrochloride with 0.2 gram of urethane in 3 c.cm. distilled water; and (5) a 1 in 500 solution of metaphen for small veins. The aim is to use a hypertonic fluid which, in contact with the intima of the vein for five minutes, will so thoroughly irritate and destroy the intima as to result in sclerosis. After the affected vein has been defined and brought with prominence by a tourniquet above the knee the injection should be made very slowly with a 10 c.cm. syringe and a 26 gauge needle, care being taken that none of the solution passes outside the vein, a pad of gauze being held over the site of puncture for some minutes to prevent leakage. Contraindications are cardiac and renal disease with venous stasis, obstruction to the deep circulation, arterio-sclerosis, and acute or subsiding phlebitis.

192 Stieda's Lesion

W. F. BAASTAD (*Norsk Mag. f. Laegevidensk.*, December, 1930, p. 1385) records four cases in adult patients, aged 50, 25, 53, and 40 respectively, of the so-called Stieda's lesion, the pathological nature of which is doubtful. The traumatic origin of the condition is obvious, the nature of the trauma being a violent abduction of the knee. Most of the cases are not examined by *x* rays until the end of three of four weeks, when a shadow will be found external to the epicondyle, in some cases above and in others below it. Some authorities maintain that the shadow is due to a metaplastic process connected with rupture of the tendon or ligament, but others have found either a fragment of bone torn from the condyle or a process of bone formation arising from a piece of periosteum which has been torn away by the trauma. In three of Baastad's cases a fracture was detected, in spite of the fact that the *x*-ray examination did not take place until four weeks after the trauma. In one case in which no shadow was found three months after the trauma there had probably been only a rupture of a tendon or ligament, although the nature of the trauma and the symptoms were the same as in the three other cases. All the patients were treated by massage with good results.

193 Treatment of Malignant Tumours with Radio-active Bismuth

According to H. KAHN (*Deut. med. Woch.*, December 12th, 1930, p. 2131), of the heavy metals which have been used in colloidal form in the treatment of malignant disease, bismuth alone becomes selectively distributed in the cancer cells. Instead of giving injections first, followed by radiation of the tumour, he has used a preparation of bismuth previously rendered radio-active (bismuth-isotope Radium E). Human and animal experiments indicate that this bismuth-isotope becomes concentrated in the tumour eighteen times as much as in the corresponding normal tissue. This concentration can also be demonstrated by placing a section of the tumour (after injection of the patient or animal) on a photographic plate in the dark room, when a picture of the tumour ("autoradiogram") can be obtained owing to the blackening of the photographic plate by the radio-active material in the tumour. No serious untoward effects have yet been observed from treatment by radio-active bismuth, and, unlike thorium, it does not damage the blood cells. So far as clinical results are concerned, there is an undoubted influence on tumour growth, but the method is too much in its experimental stage for any final decision.

194 Bilateral Simultaneous Artificial Pneumothorax

V. MONALDI (*Riv. di patol. e clin. della tubercolosi*, December, 1930, p. 1005) records his observations on nine cases of bilateral simultaneous artificial pneumothorax in patients between the ages of 17 and 34. He concludes that in some cases of pulmonary tuberculosis the bilateral procedure may be as valuable therapeutically as unilateral pneumothorax. The tolerance of double simultaneous collapse of the lung in suitable cases in which the treatment is conducted properly is established by a change taking place in the functional and cardio-vascular equilibrium. In cases in which the collapse is exaggerated,

owing to errors of technique or to extensive respiratory or cardio-vascular lesions, insufficiency may develop. Respiratory insufficiency is manifested by exaggerated thoracic movements, increased respiratory quotient, a low alveolar tension of CO_2, and changes in the basal metabolism; while cardio-vascular insufficiency is indicated by fall of the systolic pressure, usually accompanied by diastolic hypertension, arrhythmia, asystole, exaggerated dicrotism, and other changes in the form of the sphygmogram.

195 Tonsillectomy in Acute Cervical Adenitis

H. L. BAUM (*Journ. Amer. Med. Assoc.*, December 13th, 1930, p. 1829) reports a series of 40 cases in support of his view that it is safe to remove tonsils and adenoids during the height of an anterior cervical adenitis, and that such a procedure is to be recommended. The average age of the patients in his series was 3.6 years. All the patients showed acute enlargement of the anterior cervical glands following a combined tonsillar and pharyngeal infection, with soreness and tenderness of the glands, stiffness of the neck, general prostration of varying degree, high and usually irregular pyrexia, leucocytosis and an increase in the polymorphonuclears, and a decrease in haemoglobin. Baum believes that tonsillectomy should be performed in such cases as soon as it is seen that no progress is being made, since early removal of the chief source of infection of the glands is clearly indicated. He has had no unfavourable operative sequels, and for the most part the subsequent improvement was dramatically rapid.

Therapeutics

193 Insulin in Wasting following Cholelithiasis

D. CECCARELLI (*Il Policlinico*, Sez. Prat., November 17th, 1930, p. 1665) reports the beneficial results of insulin treatment in a youth of 18 who lost 3 stone in weight during six months, following cholelithiasis, and in whom tuberculosis and diabetes had been excluded. It is generally thought that such wasting is due to chronic or sclerotic pancreatitis. Other forms of treatment having failed, the patient received 20 units of insulin daily, 10 units being given twenty minutes before the two principal meals. In 45 days the patient gained 32 lb. in weight, after which the treatment was discontinued. In the first five days the patient gained 8½ lb., which the author attributes to an increased retention of water, confirmed also by decrease in diuresis; the subsequent continued increase in weight was probably due to improved assimilation. Adrenaline was administered orally in daily doses of 30 minims owing to the patient's low blood pressure, and also because of its well-known action in preventing hypoglycaemia and reducing diuresis. Five months after the cessation of the insulin treatment the patient was still improving, the increase in weight being maintained.

197 Treatment of Gastric Ulcers by Pepsin

M. LOEPER, M. DEBRAY, L. MICHAUX, and Mlle SAINTON (*Presse Méd.*, October 29th, 1930, p. 1465) have treated a series of 20 cases of gastric and duodenal ulceration by the hypodermic injection of pepsin. In a preliminary series a 10 per cent. solution of pure sterilized pepsin was given in 1 c.cm. doses, but, owing to rather troublesome general reactions, a 10 per cent. solution of pepsin was made up with the addition of sodium benzoate, which eliminated the unpleasant reactions without lessening the efficacy. A standard course of treatment consisted of a first injection of 1 c.cm. into the muscles of the buttock; this acted as a test of tolerance. The following injections were of 2 c.cm., and were repeated three times a week for fifteen doses. Three weeks' rest was then allowed, with a simple but generous diet, after which, if the pains returned, a second similar course was given. The authors were guided by the tolerance displayed by the patient, and by *x*-ray examination as to the frequency and desirability of further courses of injections. The treatment was well borne and the results were very gratifying in 19 patients, most of whom had had previous unsuccessful treatment of different kinds. A detailed table is given of the results of treatment; in it are included two cases of carcinoma which showed little change except disappearance of pain. Among the cases treated by pepsin were 2 ulcers of the lesser curvature, 7 pyloro-duodenal, and 7 duodenal. No other medication was employed simultaneously, and the authors claim that the injections of pepsin must have caused the almost uniform and dramatic amelioration in all the cases except one. They discuss its method of action, and conclude by stating their belief that cases of hyperchlorhydria and ulceration are hypersensitive to pepsin, and that the good effects produced by its injection can be better explained by the hypothesis of hypersensitivity than on any other lines.

198 Yagéine or Harmine

J. DECOURT and A. LEMAIRE (*Paris Méd.*, December 6th, 1930, p. 505) discuss the identity of two alkaloids isolated from the South American creeper yagé, the first in 1923 by Cardenas and the second in 1847 by Fritzsche. Solutions of the salts (sulphate and chlorhydrate) are slightly fluorescent. In man a therapeutic subcutaneous dose of 2 to 3 cg. causes a slight fall in the blood pressure and slowing of the pulse rate, a glycaemia of 10 to 50 cg., and a lowering of the basal metabolism, which may reach 20 per cent. The drug was first used in Parkinsonism by Kurt Beringer. The subcutaneous administration of 2 c.cg. dissolved in 1 c.cm. of water is followed in half an hour by a sense of well-being in the patient. There is diminution of the hypertonicity, permitting of voluntary movements being performed with greater ease and suppleness. The tremors are increased in amplitude and frequency, the latter often being doubled. Generally, post-encephalitic cases of Parkinsonism in the young yield more readily to this drug than examples of the classic disease in the aged; in many cases there may be no change whatever. The therapeutic effect lasts for a few hours only, rarely 24 hours to a few days. Good effects, and no untoward incidents, are reported with daily subcutaneous injections of 2 cg. Beringer also advocates doses of 4 cg. in keratin-coated capsules two or three times a day. Suppositories appear to be more efficacious. Both these methods afford alternatives to the injections for long-continued therapeutic effect.

199 Splenic Extract in Malarial Anaemia

C. HEDERER (*Bull. Soc. de Thér.*, November 12th, 1930, p. 288), who records three illustrative cases, states that the Toulouse school, represented by Remond, Soula, Colombies, Bouisset, Tapie, Pau, and Radji, have for some time emphasized the important part played by extracts of the spleen in regeneration of the blood. In the cases of chronic malarial anaemia reported by Hederer treated by intramuscular injection of splenic extract in the form of a preparation called liposplenine, a progressive and persistent diminution took place in the size of the spleen, there was a marked increase in the number of red cells, and improvement in the general condition was shown by increase of weight and a return of appetite and strength.

200 Serum Treatment of Chronic Ulcerative Colitis

J. A. BARGEN, E. C. ROSENOW, and G. F. C. FASTING (*Arch. Int. Med.*, December, 1930, p. 1039) report successful results in the treatment of chronic ulcerative colitis with an antibody solution obtained by precipitation in ether-water of the specific immune serum of chronic ulcerative colitis. Details of the method are described. Fasting's antibody euglobulin solution was administered deeply and intramuscularly in about 200 cases of chronic ulcerative colitis; the important facts of the first 50 consecutive cases are given, observation having been made for a time sufficient to justify an opinion as to the value of the treatment. Uncomplicated cases are best treated by this process of immunization against the causative

organism; the results are said to surpass those of other methods, including operation and irrigation of the colon with medicated solutions. Since at present it can only be hoped to control the condition rather than to effect a cure, patients who have once overcome an attack should continue to receive the vaccine periodically, but the degree of frequency required is still problematical. The treatment is most useful in the more severe, subacute cases in which it was usual to perform ileostomy; the need for this procedure has been less frequent, and more limited to dealing with complications, since the institution of serum therapy in this disease.

201 Bismuth Subnitrate in Arterial Hypertension

E. J. STIEGLITZ (*Journ. Amer. Med. Assoc.*, September 20th, 1930, p. 842), while admitting that the etiology of arterial hypertension is obscure, stresses the importance of combating the vicious circle of muscular irritation followed by fatigue and increased irritation, and finally resulting in vascular sclerosis. Considering that the action of the usual vaso-dilators is transient, and therefore of little value, he has tried bismuth subnitrate in doses of 10 grains three times a day; the bismuth ion is inactive, the specific action on arterial muscle being due to small quantities of nitrites which are liberated continuously by the action of *B. coli* in the intestine. In 200 unselected patients of all ages treated by this method, he has obtained reduction of the diastolic pressure below 100 mm. in 77 per cent. Of the total number treated, 122 were free from arterio-sclerosis, and 78 suffered from it to some degree. The result of treatment, which extended over a period on the average of six months, is gauged by the "percentage reduction of pressure towards normal for the age." This "percentage reduction" for systolic and diastolic pressures amounted respectively in the arterio-sclerotic group to 39 and 46 per cent., and in the other group to 73 and 105 per cent. The treatment of 120 cases of hypertension associated with pregnancy showed the amenability of such cases to the same treatment, but the association with a definite, if unknown, toxic state makes the pressure reduction of doubtful use, or even dangerously misleading. Stieglitz believes that the breaking of the "vicious circle" over a period of several months is of definite therapeutic value, and he has observed some cases where such a course of treatment has been followed by a continuation of lowered pressure for three to four years. Commenting on the use of bromides and sedatives of the barbituric acid group, he holds that the bismuth subnitrate therapy gives better and more lasting results.

Disease in Childhood

202 Still's Disease

M. TROMBETTI (*Rinascenza Med.*, October 15th, 1930, p. 502) publishes a synthetic account of Still's disease, which he recognizes as a definite entity, differing from other infective forms of arthritis; its origin is as yet unknown. The paper is illustrated by photographs and radiograms of the condition. Usually the disease sets in gradually in young subjects, but may start more abruptly like an acute rheumatism; it differs in not "flying from joint to joint," but tending to become fixed in one or other articulation and in enlargement of the spleen and lymphatic glands. The fever may be of a chronic, protracted type, or be intermittent; each recurrence of fever is associated with fresh joint involvement. Occasionally rashes may occur. Growth is stunted, and as a rule there is marked cachexia and some anaemia, with variable changes in the white cell count. In the early stages the larger articulations are affected, later there is a symmetrical spread to the smaller joints; once started, the disease tends to remain fixed. Owing to the muscular wasting the articular ends appear more enlarged than they really are. Osteoporosis of the epiphyses is common. The enlargement of the lymphatic glands is secondary to the joint infection, and due to the same cause, whatever that may be. Authors are agreed that there is no sign of tuberculosis in these cases, but pericarditis is a fairly frequent epiphenomenon. The disease is essentially chronic, and seldom fatal. Treatment so far seems to be of little avail. Sometimes the onset of some intercurrent affection influences the course of the disease favourably, so that in the absence of any known cure malaria therapy might possibly be worth trying.

203 Treatment of Bronchiectasis in Childhood

R. NISSEN (*Münch. med. Woch.*, October 24th, 1930, p. 1849) considers that many cases of bronchiectasis in children originate in congenitally dilated bronchioles, and that the condition only follows "prolonged pneumonia" comparatively rarely; treatment should therefore aim at compressing these bronchioles. In order to achieve this he plugs the thoracic cavity round the affected lobe with a mixture of paraffin wax, and reports that good results have followed this method. In a child 300 to 400 c.cm. are required, and expectoration ceased completely in a number of cases thus treated; the scoliosis which almost inevitably follows extensive rib resection or artificial paralysis of the diaphragm in a child is avoided. For those cases in which the effect of paraffin plugging is not permanent he advocates lobectomy, remarking that if this is carried out in several stages the risk is not excessive. Among four children treated thus there were no deaths, though among 28 adults the mortality was 10 per cent. Nissen has found pneumothorax treatment disappointing in bronchiectasis. If a low pressure was used the alveoli alone were compressed and not the dilated bronchioles; higher pressure merely displaced the mediastinum, again without affecting the bronchiectatic dilatations.

204 The Measurement of Intelligence in Infants

T. SIMON (*Paris Méd.*, November 1st, 1930, p. 403) records the stages in the mental development of infants, previously defined in collaboration with Binet. At the age of 3 months the infant should follow with his eyes any object held up before him. At 6 months he should turn towards sounds, seeking their origin. At 9 months he should seize an object within his reach in his field of vision. This is, of course, different from the earliest reflex action—namely, the grasping of any object placed in his palm. At 12 months he should recognize articles of food; thus he should be able to tell the difference between a biscuit and a piece of wood of the same shape and colour, by touch or taste, or both. At 18 months he should be able to say "Mama" of his own accord. At 2 years he should walk, ask to go to the lavatory, and obey simple instructions conveyed to him by word and gesture.

205 Circulatory Changes at Birth

Collating the results of several recent investigations, B. M. PATTEN (*Amer. Heart Journ.*, December, 1930, p. 183) concludes that there is no abrupt change in the infantile circulation at birth, there being a sufficient volume of blood in the lungs of the newborn infant for its need until they are sufficiently ventilated. The volume and power of the pulmonary circuit gradually increase until by the end of the first month the new functional balance in intracardiac pressure is established. Under normal conditions the progressive closure of the ductus arteriosus hastens the enlargement of the pulmonary vessels after birth, but there are many cases in which the normal pulmonary circulation has come into being without such a closure, the foramen ovale falling gradually into disuse, and then becoming obliterated. Failure of the ductus arteriosus to close is regarded as a symptom rather than a cause of circulatory dysfunction. Following the increase in the pulmonary circulation, and the closure of the foetal blood passages, there is a gradual increase in the musculature of the left ventricle until it equals that of the right at the age of 3 to 5 months. It has acquired a definite preponderance by the second year, and its full adult relation to the right ventricle by about the seventh year.

Obstetrics and Gynaecology

206 Ectopic Gestation

C. A. BEHNEY (*Journ. Amer. Med. Assoc.*, November 22nd, 1930, p. 1557) reports a series of 167 cases of extra-uterine pregnancy, and concludes that diagnosis depends on the association of a history of amenorrhoea with recurring and consistently localized pain in the lower part of the abdomen, metrorrhagia, signs of pregnancy, and the presence of a typical pelvic mass. Ectopic gestation occurs most frequently between the ages of 27 and 35, and the high incidence of anteflexion of the uterus and of irregularity or delay in the menses suggests the possibility of genital hypoplasia. Pelvic masses were found in 85.5 per cent. of the cases, and ruptured ampullar pregnancy was the commonest lesion. Behney did not obtain evidence of pre-existent pelvic disease sufficiently often to incriminate it particularly; in 80.5 per cent. of the patients there had been no previous pelvic symptoms, but when these had occurred there had often been discovered some abnormality of the adnexa on the opposite side of the abdomen to that where the ectopic gestation had subsequently developed.

207 Fibroma Praevia and Forceps Delivery

BAUX (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, November, 1930, p. 703) describes a case in which a very soft and very oedematous fibroma, about the size of the foetal head, was found in the vagina at the end of the first stage of labour in a primipara aged 22. Extraction by forceps was rendered difficult by repeated interposition of the flaccid tumour between the blades. On the third day the fibroma became gangrenous and was excised without haemorrhage from the cervix, to which it was attached by a broad pedicle. GARIPUY (ibid., p. 704) describes two cases of forceps delivery with fibroma praevia. In the first patient, a primipara aged 39, the fibroma ascended from the pelvis late in the second stage, but, subsequently returning, caused difficulty in manual removal of the placenta. In the second patient the fibroma, from the beginning of labour, gradually gave way to the descending head; there was alarming post-partum haemorrhage. In the case of AUDEBERT and E. ESTIENNY (ibid., p. 705) a fibroma praevia, the size of the fist, was found in the pelvis after forty-eight hours' labour, the cord being prolapsed and the foetus dead. Quite suddenly, as preparations were being made for Caesarean section, the tumour ascended above the pubis, and labour was completed by forceps application to the transversely placed head.

208 Causative Factors in Sterility

S. R. MEAKER (*Amer. Journ. Obstet. and Gynecol.*, December, 1930, p. 749) reports a study of sterility comprising elaborate gynaecological and urological examinations and a thorough investigation of both partners from the medical and endocrinological standpoints. Sterility was found to be due in most cases to the combined influence of multiple causative factors, and the assessment of individual responsibility became a complex matter. It appeared that a considerable number of states, generally depressing and debilitating in nature, might reflect themselves in lowered fertility of the sex cells. Any single one of these states, excepting the comparatively few absolute factors, might not be sufficient to cause sterility; all of them together depressed fertility below the threshold of conception. Among endocrine disorders pituitary disturbances were conspicuously in the majority, and the thyroid failures constituted a small but important minority. Protein starvation appeared to be the chief nutritional error militating against fertility. Obesity was not a cause of sterility, but obesity and sterility were frequently associated as simultaneous results of the same underlying subnormality of metabolic function. In nearly 90 per cent. of sterile matings extragenital conditions of constitutional depression were operative. In more than 90 per cent. of clinical cases there was some division of responsibility between the two partners. Meaker found that such complete investigation pointed the way to adequate treatment, which resulted in a percentage of successes more than twice as great as the average of successes obtained by methods previously employed.

209 Occlusions of the Lumen of the Fallopian Tube

R. E. WATKINS and F. R. MENNE (*Journ. Amer. Med. Assoc.*, November 29th, 1930, p. 1647) have tried to determine the most frequent sites and the extent of occlusions of the Fallopian tubes, and the microscopical appearance of the involved area. Forty-nine tubes were examined, the technique employed being to fill the uterine and tubal cavities with bismuth mixtures under measured pressures ranging from 100 to 250 mm. of mercury. Though occlusions may occur in any part of the tube, the most frequent site is the isthmian portion. The fimbriated end, when not adherent to the ovary, is frequently open, or partially so. Restoration of the lumen depends on the absorption of inflammatory products. Healed abscess cavities and canaliculi are important causes of extrauterine pregnancy. In the present series no tubo-ovarian abscesses communicating with abscess cavities in the ovary were found. The authors remark that operations to re-establish the lumen of the tube should never be contemplated until a definite diagnosis of the location of the obstruction has been made. If the occlusion is at the fimbria, this may be opened by separation, or by resection of a portion. When the occlusion is in the intramural or isthmian portions surgery is unsatisfactory. Conservative measures, with the regenerative processes following eradication of the infection, are the best curative agents, and insufflation, or the injection of fluids through the lumen, may aid in opening the channel. The histology of the condition is described at some length.

210 Adeno-acanthoma of the Uterus

Recording a case of that rare condition adeno-acanthoma of the uterus, A. STEIN and F. TOREK (*Surg., Gynecol. and Obstet.*, December, 1930, p. 856) describe as unique a metastasis in the mediastinum and lung. The married patient, aged 42, presented symptoms and signs suggestive of uterine cancer. After hysterectomy, the entire uterine wall was found to be invaded by carcinomatous tissue. For 2½ years after the operation no evidence of local recurrence was noted. A little more than two years after the hysterectomy the patient complained of gastric pain, loss of appetite, and difficulty in swallowing, and radiographic examination of the thorax revealed a mass in the mediastinum. This was diagnosed as a cyst, but, when removed, it proved to be an adeno-acanthoma of the lung and posterior mediastinum secondary to the earlier uterine growth. The patient made a good recovery from this operation also.

Pathology

211 Renal Insufficiency and Azotaemia

E. BECHER (*Klin. Woch.*, December 13th, 1930, p. 2350) defines two distinct types of renal insufficiency associated with azotaemia. In the first type, which is a circulatory disturbance seen in heart failure and also usually in acute nephritis, the non-protein nitrogen, urea, and uric acid are increased in the blood, but the products of intestinal putrefaction, such as indican, are not increased. There is no change in the colour of the urine unless blood is present, and the specific gravity remains normal or high. In the second type there is a real failure of the renal tubules, which is seen especially in chronic nephritis. In addition to the rise in the blood urea, etc., there is an increase of indican, and often creatinine, in the blood even in the early stages. The skin of the patient's hands and face has a yellowish appearance; the urine is of low or fixed specific gravity (hypo- or iso-sthenuria), and is pale in colour, probably owing to failure of the kidney to convert chromogenic substances into their coloured form.

212 Germicidal Properties in Soaps

Some soaps, such as the oleate and bromo-palmitate, are among the most powerful and rapid germicides known, and certain soaps may play an important part in the body defence against bacteria, having, indeed, a selective germicidal action. A. H. EGGERTH (*Journ. Exper. Med.*, January 1st, 1931, p. 27) has tested two series of sulphur-containing soaps, the α-mercapto and α-disulpho varieties. These were found to possess a powerful and markedly selective germicidal action. In the mercapto series, those with 12 and 14 carbon atoms were the most germicidal; in the disulpho series, the dicaprate, dilaurate, and dimyristate were the most powerful. The optimum number of carbon atoms varied with the test organism. Eggerth finds that the number of carbon atoms in the molecule markedly influences the germicidal action of soaps. Two main factors determine this action: the ability of the soap to make its way into the bacterial cell, and its toxic action on the bacterial protoplasm after it has penetrated. As the number of carbon atoms in the soap molecule increases the toxicity becomes greater, but the penetrative power diminishes. So long as molecular size does not prevent entrance of the soap into the cell, germicidal action will increase with the molecular weight; eventually a point is reached where molecular size prevents cell entry, and germicidal action is diminished.

213 Histological Effects of Liver Diet

TH. FAHR (*Deut. med. Woch.*, January 2nd, 1931, p. 8) summarizes the data obtained from 24 post-mortem examinations performed on cases of pernicious anaemia in 1929 and 1930. In 12 of these liver diet had been given for too short a time to have any effect, the patients having been admitted when moribund, or having died from complications soon after admission. These showed the usual morbid appearances associated with pernicious anaemia. In the other cases, which had responded to liver treatment (as far as the blood picture was concerned), but in which death had followed such conditions as sepsis following spinal cord degeneration and broncho-pneumonia, the typical changes in the heart muscle, bone marrow, liver, and spleen were very slight or absent, showing that these had been influenced favourably by the treatment. One patient, a woman who had exophthalmic goitre in addition to pernicious anaemia, failed to respond to liver therapy; the post-mortem changes were typical of an untreated case. In the author's opinion, cases showing predominantly spinal symptoms have the worst prognosis, and are little if at all influenced by treatment.

214 The Relation of Mild to Typical Small-pox

E. DIEM (*Schweiz. med. Woch.*, December 13th, 1930, p. 1174) inoculated with vaccine lymph a number of persons who had suffered from an attack of mild small-pox eight to nine years previously. Of 45 persons tested, five reacted positively, but the reactions in these cases were estimated as being only about one-fifth to one-third of the intensity of a normal control. On the other hand, patients suffering from varicella, when tested at the height of the rash, or six to nine days after its eruption, gave uniformly a strong positive reaction. It would appear, therefore, that the outbreak of mild small-pox which commenced in Switzerland in 1921 may have been immunologically similar to true small-pox, and that it was entirely different from varicella.

215 Haemorrhagic Lesions caused by Clostridium welchii

M. WEINBERG and N. COMBIESCO (*Ann. de l'Inst. Pasteur*, November, 1930, p. 547) bring evidence to show that such symptoms as haemoglobinuria, haematuria, haemoptysis, and gastro-intestinal and uterine haemorrhages observed in patients infected with *Cl. welchii* (*B. perfringens*) are caused by the toxin secreted by this organism. The lethal dose of dried toxin for guinea-pigs was found to be about 1.6 to 3 mg. When these animals were injected intravenously with doses varying from 2.5 to 12.5 mg. they all developed haemoglobinuria, and this was often followed by haematuria; death ensued in 10 to 24 hours. At the necropsy haemorrhagic lesions were generally encountered in the kidney, liver, spleen, stomach, suprarenal, lung, and heart, and sometimes in the uterus and bladder. Besides these lesions, which were apparently due to the haemolytic toxin, focal necroses were found in the liver, and less often in the kidney, due to the non-haemolytic toxin. As regards the mechanism of the haemorrhages, it appears that the non-haemolytic toxin may produce at the same time a rise in blood pressure and a degeneration of the capillary walls; the vessel ruptures, and allows extravasation of blood to occur.

216 Post-Arterio-sclerotic Pulmonary Lesions

E. MOSCHCOWITZ (*Amer. Heart Journ.*, December, 1930, p. 171) describes the brown induration of the lungs which occurs in forms of circulatory or cardiac disturbance in which there has been hypertension of the pulmonary circulation. This lesion is, he finds, exclusively associated with arterio-sclerosis of the pulmonary vessels, a condition pathognomonic of such hypertension; there is dilatation and thickening of the pulmonary capillaries. Part of the sclerotic process is unquestionably the result of a diminished blood supply, and even of infarction of the affected areas. The pulmonary lesions are exactly similar to those seen in the systemic organs, and especially in the kidney, in hypertension of the greater circulation. Moschcowitz reports a case in which brown induration was found after prolonged asthma. Under observation the patient revealed the transition from a purely functional bronchial asthma to emphysema to a pure clinical example of hypertension of the pulmonary circulation, and finally to death consequent on failure of the right side of the heart.

217 Experiments with Foot-and-Mouth Virus

I. SICHERT-MODROW (*Zentralbl. f. Bakt.*, December 8th, 1930, p. 12) has constructed an apparatus for cataphoresis experiments which he maintains is free from the disturbing influence of diffusion currents. With this apparatus he finds that the foot-and-mouth virus is always negatively charged, in this respect resembling the ordinary bacteria. The same results were obtained with all three types—A, B, and C—of virus. No evidence of an iso-electric zone was apparent, such as was concluded to exist by Olitsky and Boëz. In a second paper (ibid., p. 17) the author records experiments on the resistance of the virus to different temperatures. Working with heparinized guinea-pig plasma and guinea-pig serum, he finds that in the dried state the virus may survive in the ice-chest for 1½ to 2 years. At room temperature the virus retained its infectivity for only 5 to 10 days. A surprising resistance was observed to high temperatures. Dried lymph *in vacuo* survived for 2½ hours at 70° C., and for 3 minutes at 122° C. On the other hand, lymph that had not been previously dried was destroyed very rapidly.

218 Skin Tests in Diagnosis of Allergy Conditions

S. M. FEINBERG (*Journ. Amer. Med. Assoc.*, November 29th, 1930, p. 1665) maintains that sensitization estimations should be considered only as laboratory guides, and that there are many limitations to the value of skin tests in allergy. Negative reactions may be given to substances to which the patient is clinically sensitive, or the converse may be the case; negative reactions frequently indicate an absence of allergy, and many variations have been found when relating the tests to the clinical conditions. Complications, such as infection, mechanical difficulties, and neurogenic factors, may be more important than the allergy. These difficulties may be met chiefly by employing, when necessary, other methods of testing, such as the intracutaneous, subcutaneous, conjunctival, and the nasal; by clinical investigations and elimination diets; by a wide knowledge of the clinical correlation and clinical experience in allergy; and by bearing in mind the possible existence of causes other than allergy.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

219 Acute Benign Infectious Myelitis

As a rule myelitis caused by such organisms and toxins as those of the typhoid and influenza groups, if not fatal, usually results in prolonged illness and chronic invalidism. The sensory and motor disturbances in these patients invariably remain. There is, however, a recoverable type of myelitis, as has been reported by Strauss and Rabiner, and I. J. SANDS (*Journ. Amer. Med. Assoc.*, January 3rd, 1931, p. 23) records four such cases. Following infection of the upper respiratory tracts, there occurs in young patients paralysis of the lower extremities, with loss of the deep tendon and abdominal reflexes, retention of urine, and subjective and objective sensory disorders which show a segmental distribution. Slight leucocytosis is present, and the spinal fluid has an increased protein content and shows relatively slight evidence of any cellular reaction. Recovery is apparently rapid and complete. The present cases were evidently due to an unknown infectious agent producing an invasion chiefly of the cord and, to a lesser extent, of the roots, causing radiculitis and paraplegia with bladder disturbance. Recovery was complete in all but one instance, in which residual pyramidal tract involvement persisted. Even in this patient the only complaint was constipation. No specific treatment was tried. While such cases may be due to a new organism, Sands suggests that they may represent an attenuated form of epidemic encephalitis. Strauss has recommended the use of foreign protein intravenously, and Sands adds that he has employed this in other forms of subacute inflammatory cord and brain diseases with considerable benefit.

220 Epidemics of Acute Myalgia in Iceland

R. K. RASMUSSEN (*Ugeskrift for Laeger*, January 15th, 1931, p. 56) traces the development of the seven epidemics of acute myalgia which have been observed since 1856 in Iceland. The second occurred in 1865, the third in 1900, the fourth in 1911, the fifth in 1915–1917, the sixth in 1926–1927, and the seventh and last in 1928. These outbreaks were characterized by stabbing pains in the muscles of the chest and abdomen and, in some cases, by dry pleurisy and catarrhal phenomena. The incubation period was always less than ten days, and adults, principally males, were most often attacked. The overwhelming majority of the cases occurred in the summer and autumn. In the first, second, fourth, and fifth epidemics the disease was limited to one particular district. It was this district which suffered most in the sixth outbreak, which began in Reykjavik in June, 1926, and spread rapidly over large parts of the island; 565 cases were notified in that year. Though the leading clinical characteristics were sufficiently uniform in all seven epidemics to justify the conclusion that their etiology was identical, the incidence of fever and pleurisy varied very much in the different epidemics. Thus it was only during the fourth epidemic that the patients were invariably febrile; in the others (apart from the first two, in which observations on the temperature were lacking) cases of high fever alternated with subfebrile cases and with those in which the temperature was not raised at all. In the fifth epidemic all the patients suffered from pleurisy, the outbreak earning for itself the term " pleuritis epidemica." In the other epidemics pleurisy occurred only now and then, and it was conspicuous by its absence in certain areas in the epidemic of 1926. It would therefore seem that pleurisy was no more than a complication which occurred with variable frequency in different outbreaks of one and the same disease, and was not to be regarded as a cardinal and pathognomonic symptom. The author considers that a better term for this disease is " rheumatoid infection."

221 Pernicious Anaemia

J. F. WILKINSON and W. BROCKBANK (*Acta Med. Scand.*, December 16th, 1930, p. 211), after discussing the vague gastro-intestinal, cardiac, and nervous symptoms which often precede the recognition of the typical pernicious anaemia, characterized by raised colour index, anisocytosis, and relative lymphocytosis, have selected seven out of a series of 150 cases to illustrate the difficulties often met with in making an early diagnosis of this disease. They suggest that, besides a complete blood examination, a fractional test meal should be a routine procedure in all cases of weakness and anaemia, persistent diarrhoea, and soreness of the tongue, all cases of paraesthesia, and all undiagnosed cases of gastro-intestinal disease, particularly those of doubtful carcinoma of the stomach.

222 Tetany Complicating Enteric Fever

C. GARDÈRE and J. SAVOYE (*Journ. de Méd. de Lyon*, January 5th, 1931, p. 21) state that tetany may occur during the progress of any of the exanthemata, but it appears to be a rather rare complication of enteric fever, occurring usually in moderately severe cases, and with equal frequency among children and adults. The complication exhibits the classic symptoms of carpo-pedal spasm, associated with flexure of the distal portions of the limbs upon the proximal segments. The prognosis is favourable, and the tetany runs a clinical course corresponding to that of the enteric fever, spontaneous recovery being the general rule. The etiology is obscure. Among several hypotheses it has been suggested that *B. typhosus* has a specific toxic action on the parathyroid glands, but this has not been demonstrated. It may be that enteric fever excites tetany in patients who have a latent spasmophilia. The authors refer to many cases recorded since 1855. They describe the case of a delicate boy, aged 3 years, who recovered from a moderately severe attack of enteric fever. Although the intermittent spasms were severe, there was no trismus, nor symptoms of meningitis. Parathyroid extract was given daily, and calcium chloride later; as no improvement resulted from twelve days' administration, the authors resorted to ultra-violet irradiation. The blood calcium content was practically normal. They add that there is on record a case of tetany supervening two years after an attack of enteric fever. No familial history of spasmophilia has been noted in any of the recorded cases.

Surgery

223 Volvulus of the Stomach

G. BARBERA (*Il Policlinico*, Sez. Chir., January 15th, 1931, p. 1), who records a fatal case in a woman aged 48, illustrates the rarity of volvulus of the stomach by the fact that Boppe could find only 44 cases in the literature up to the end of 1928, the first case having been reported by Mazzotti of Bologna in 1874. According to Heberer and Kocher, the stomach may undergo torsion on its two axes. The first of these passes from the cardia to the pylorus, constituting the axis of the stomach; torsion on this axis is known as " organo-axial." The second axis passes perpendicularly to the first through the lesser omentum, uniting the two curvatures at the central point, and being continued below the greater curvature on the gastro-colic ligament. Volvulus on this axis is called " mesenterico-axial." Of the 44 cases collected by Boppe, 23 were of the organo-axial and 18 of the mesenterico-axial type; in three the nature of the volvulus was not sufficiently described for identification. Ulcer of the lesser curvature is a frequent cause, having been found in 15 cases owing to adhesions or perigastritis to which it gives rise. In the majority of cases, as in Barbera's patient,

the cause is ptosis, gastric dilatation, or laxity of the ligaments. The principal symptoms are violent attacks of pain, tympanitic swelling of the epigastrium, absence of vomiting (contrasting with intestinal obstruction), and inability to pass a sound into the stomach. The mortality is always very high. Treatment consists in simple untwisting of the torsion (7 recoveries and 3 deaths), or untwisting the torsion followed by an operation such as resection or gastro-enterostomy (14 cases).

224 Prevention of Peritonitis in Colon Surgery

According to F. W. RANKIN and J. A. BARGEN (*Arch. Surg.*, January, 1931, p. 98), prophylactic value attaches to the injection of a vaccine prepared from streptococci and colon bacilli with a view to preventing peritonitis from following surgical operations on the colon. This conclusion is based upon a series of 222 vaccinated cases, which is contrasted with another of 58 cases during the same period operated upon for similar conditions, no vaccine being given. Eleven deaths from peritonitis occurred among the 222 cases, while there were thirteen deaths among the 58 non-vaccinated patients. The vaccine is prepared from streptococci and colon bacilli recovered from the peritoneal exudate in a case of peritonitis. It is suspended in sodium chloride solution and introduced by a blunted spinal puncture needle into the peritoneal cavity. Other preventive measures include the thorough cleansing of the large intestine and relieving any obstruction by supplying a residue-free diet, and administering laxatives and colon irrigations. The authors mention that in one week the same surgeon operated upon two patients of similar build, age, surgical risk, and identical lesions; the unvaccinated one died within a week from general peritonitis, while the vaccinated one made a smooth, uneventful recovery. The pre-operative measures, with the exception of the vaccine, were the same in both. Animal experiments have shown that protection can be established against otherwise fatal peritonitis. Since the immunity obtained by the vaccine injection is relatively transient, the operation should take place within twenty-four hours after the administration of the vaccine; the peritoneal injection and hyperaemia in these cases was found to be marked, and indicated increase of the blood supply of the part, and its flushing with an increased number of phagocytes.

225 Causes of Thrombosis

W. KÖNIG (*Zentralbl. f. Chir.*, January 17th, 1931, p. 130) comments on the great increase of post-operative thrombosis and embolism in recent years. The three necessary factors are circulatory changes, damage to the vessel walls, and alterations in the blood itself. A fresh extract of crushed muscle injected into an animal will produce all these changes, as will also the toxin which Freund found in defibrinated blood. After injection of either of these substances there is a fall of blood pressure; congestion in the lungs, liver, extremities, and right ventricle; and a diminution in the number of platelets in the blood. The platelets also break down more readily than usual, and are more easily agglutinated. Chemical changes in the blood, such as increased protein breakdown and a rise in the non-protein nitrogen figure, also occur. These changes also take place after operation, the vascular engorgement of the extremities being shown by the temperature of the sole of the foot, which is raised for several days. There is a special tendency to thrombosis if the low platelet count fails to rise in a few days' time. Several substances may be responsible for these effects and thus predispose towards thrombosis, but adenosin—a product of nuclear destruction—is probably the most important. Statistics show that thrombosis is commonest in cases of tumours, fractures, and inflammatory conditions where nuclear breakdown is especially likely to occur. The bearing of these considerations on the prophylaxis and treatment of thrombosis has not yet given rise to practical results, but there is evidence that the injection of the patient's own blood prevents the fall of the platelet count after operation.

Therapeutics

226 Hyperpyrexial Treatment of Dementia Paralytica

C. A. NEYMANN and S. L. OSBORNE (*Journ. Amer. Med. Assoc.*, January 3rd, 1931, p. 7) describe the results obtained by treating with diathermy 25 patients suffering from dementia paralytica. Large electrodes were applied over the chest and back of the patient, and currents of between 4,000 and 6,500 milliamperes were passed; precautions were taken to avoid the occurrence of burns, the most dangerous sites being near the iliac crests. Clinical remissions occurred in 16 cases, and lasted for not less than four months. All the patients showed reduction of blood pressure, and the authors consider that this and the changes in the blood chemistry which were observed were due to the profuse perspiration which ensued. No harm of any kind was caused, and this the authors attribute to the fact that great care was taken to prevent the temperature from rising too rapidly or above 105°, the optimum degree being stated as 103.5°.

227 Local Treatment of Varicose Ulcers

C. FOUQUET (*Bull. Soc. Franç. de Derm. et de Syph.*, December 9th, 1930, p. 1306) claims to have improved all cases treated by Bourggraff's method since commencing outpatient treatment at Nanterre in June, 1930, and to have cured many patients in periods varying from a few weeks to a few months, according to the extent of their lesions. The method consists in cleaning the ulcer with ether, and then applying a layer, one centimetre thick, of a paste of bioxyol, which has a basis of zinc peroxide; in contact with alkaline serous discharges this liberates ozonized oxygen. Around the ulcer, and covering the area of dermatitis which usually surrounds it, is spread a layer of a substance with an ichthyol base; the whole region is then covered with sterile gauze, and bandaged with a tarlatan (not cotton) bandage. The patient is recommended to put on an elastic bandage, with the leg elevated, before getting up in the morning, and to keep this on all day. In contrast with methods depending mainly on correction of the venous stasis, the dressing requires changing every two or three days. It is claimed that the ozonized oxygen has both a healing and an anaesthetic action, and that the pain of an ulcer frequently disappears after the first application.

228 Pyloric Obstruction Relieved by Medical Treatment

W. DE SCRIVER (*Canadian Med. Assoc. Journ.*, January, 1931, p. 99) describes the case of a man, aged 73, who presented clinical and radiographical evidence of well-marked pyloric stenosis, but who responded nevertheless to medical measures, an operation having been refused. When first seen he had abdominal pain with marked emaciation and debility, a moderate degree of arteriosclerosis, and pronounced dehydration. The abdomen was full in the upper half, but flattened below; no peristalsis could be detected, but there was a palpable and easily heard succussion splash. The *x*-ray diagnosis was pyloric stenosis caused probably by a duodenal ulcer, and giving rise to at least twenty-four-hour gastric retention. Atropine administration having proved useless, the stomach was washed out twice daily, and intravenous injections of glucose (400 c.cm. of a 20 per cent. solution) and normal saline solution were given. Feedings of orange juice, egg-nog, and milk were added on the third day; however, when the tube was passed in the morning there was always a large residue from the previous day. After five days the patient's condition was much better, but an operation was still refused; the feedings were therefore increased, and the patient was trained to pass the stomach tube. The gastric residue gradually decreased in amount, and the patient eventually returned to his work. A later *x*-ray examination showed the stomach empty after six hours. The three points on which Scriver bases his success in this case are the intravenous therapy which arrested the dehydration, the frequent lavages, and the small fluid feeds.

Laryngology and Otology

229 Chronic Otitis Media

G. F. SHAMBAUGH (*Arch. of Otolaryngol.*, December, 1930, p. 753) believes that only in exceptional cases of chronic suppurative otitis media is there any serious menace of complications arising, and only for such cases are operative measures advisable. It may be necessary to eradicate a focus of bone-invading disease, such as a caries or cholesteatoma in the attic, the aditus, or the antrum, but such a procedure is not to be classed as unsuccessful if, as is often the case, the otorrhoea persists subsequently. Shambaugh distinguishes between two forms of chronic otitis media. In the first the disease involves the mucosa lining the cavities of the middle ear, and serious complications do not ensue. In the second the underlying bone is also affected, and there may be dangerous sequels. In differentiating between the two types the history is important; thus most cases referable primarily to scarlet fever or measles are not complicated by caries or steatoma, the infection involving only the mucosa, and the discharge being stringy and mucoid. In bone-invading disease there is often a persistent offensive odour, a granular residue in the discharge, and the presence of the white flakes characteristic of cholesteatoma. The author supports his cautious attitude towards extensive operations by arguments based an anatomical conditions. He outlines the possibilities of conservative local treatment, recommending irrigation, the instillation of hydrogen peroxide and boric acid in alcohol, and the insufflation of powdered boric acid.

230 Examination of the Upper Respiratory Tract

H. K. PANCOAST (*Journ. Amer. Med. Assoc.*, November, 1st, 1930, p. 1318) emphasizes the value of *x*-ray examination in cases of laryngeal disease, and describes his own technique. Careful screen examination precedes the taking of films, and the condition of the laryngeal ventricles, both at rest and on phonation of the vowel sound A, is carefully noted. In a normal larynx the cigar-shaped air-containing ventricle is well seen, and the arytenoids, being surrounded by air, are also easily seen; their position and mobility must be observed. The pharynx, pyriform sinuses, and trachea are examined in this order. The patient is then given thin barium cream, and the swallowing act observed. The author distinguishes four stages of deglutition as seen on the *x*-ray screen: (1) the mouth is full of the opaque mixture, and the tongue moves backwards; (2) the mixture enters the pharynx, the epiglottis moves backwards, and the larynx rises until the arytenoids touch the epiglottis; (3) the oropharynx is obliterated and the larynx still further elevated, differentiation of the arytenoids and epiglottis being no longer possible; and (4) the pharynx and pyriform sinuses empty, and all structures return to their normal position. In tumours of the larynx there is direct evidence of a localized nodule encroaching on the air spaces, and obliteration of the ventricles, which occurs also in inflammatory conditions and in paralysis of the cord; in the latter the cigar-shaped ventricle is obliterated entirely, or in the lower half or in the lower posterior portion only. Inflammatory conditions are manifested by swollen arytenoids, retro-laryngeal swelling, obliteration of the ventricles, and narrowing of the tracheal opening. The presence and extent of post-inflammatory stenosis is always well indicated; the ventricles are obliterated and the vestibule is narrowed. The upper portion of the trachea becomes funnel-shaped, or is entirely shut off some distance below the larynx. The author describes the *x*-ray appearances seen during speech in two patients who had been subjected to total laryngectomy. In the first case the pharynx and upper oesophagus filled with air, the cricopharyngeus muscle appeared as a distinct band, and the air reservoir slowly emptied while the patient counted from one to eight. In the second case the reservoir did not fill so well, but a continuous supply was maintained, and the patient was able to talk for a long period by taking in air through the nose.

231 Tonsillectomy

I. SYK (*Nordisk Medicinsk Tidskrift*, November 8th, 1930, p. 711) of Stockholm has performed approximately 2,500 tonsillectomies during the past eight years without a single death in the course of the operation or the subsequent convalescence. He attributes this achievement to his technique, the details of which were described in 1924 in *Acta Oto-Laryngologica*, vol. vi. He prefers the complete operation, irrespective of anatomical and pathological conditions, extensive adhesions, and other complications. The normal structures of the palate are retained, and the operation is always performed under light general anaesthesia, whatever the age of the patient. The operation itself taking only 25 to 40 seconds, the general anaesthesia is so light that, though consciousness is lost momentarily, the reflexes associated with swallowing and coughing are retained. With regard to pulmonary abscesses as a sequel to tonsillectomy under general anaesthesia, the author suggests that their comparative frequency in the Anglo-Saxon countries is entirely due to the completeness of the general anaesthesia induced. He thinks that the rarity of the operative and post-operative haemorrhages occurring in his cases is due to a detail in the technique. Under the general anaesthesia it is possible to pull the tonsils out of their bed in such a way that the tortuous blood vessels are stretched; accordingly, when they are divided, they retract within the muscular bed, in which they soon cease to bleed. On no occasion did he find it necessary to ligature blood vessels in a child. In view of this successful series Syk concludes that with the technique advocated no objection can be raised to the removal of the tonsils by a specialist. Tonsillotomy, on the other hand, is, in his opinion, a gamble so far as its technical execution is concerned. The operator may not succeed in removing what he wishes to remove, and the results are not infrequently complicated and impaired by cicatricial adhesions and other undesirable sequels.

Obstetrics and Gynaecology

232 Full-term Ectopic Pregnancy

A. S. WILSON (*Journ. Med. Assoc. of South Africa*, December 27th, 1930, p. 761) reports a case of an ectopic pregnancy in a 6-para which went to full term. After the patient, an Indian woman, had been in labour for two days medical aid was obtained. Although the labia were tremendously swollen, the head was well up and partially fixed. Owing to the patient's condition internal version was performed. With some difficulty the legs were pulled down; there was slight trouble with one arm, and then the after-coming head became fixed; forceps were applied, and it was delivered. Resuscitation failed, but it was concluded that had there been no delay in delivering the head, the child, which was normal in every respect, would have survived. While trying to express the placenta it was noticed that the cord did not descend. The patient was then removed to hospital, but manual delivery of the placenta was impeded by a cord-like structure, which on removal was found to be the intact uterus. On the fifth day a large recto-vaginal fistula developed, and five days later in another hospital a small piece of the anterior lip of cervix was found to be still attached to the vaginal wall; behind this the examining finger passed into a thick-walled cavity closely resembling the uterus. When the abdomen was opened two bands of yellow omentum were found shutting off the vagina below and forming a mass about the size of a normal uterus; the rest of the abdomen was clear. There were no adhesions and no free fluid. Loops of bowel were free and uninjected, and there was no boggy vascular mass indicating where a placenta might have been attached. Two later operative attempts reduced the fistula to a pin-point in the left posterior fornix. Wilson concludes that the case was one of a full-time ectopic pregnancy, and that the foetus had been violently driven through the pouch of Douglas, ripping the uterus almost completely from its attachments.

233 Nephritis in Pregnancy

E. J. STIEGLITZ (*Amer. Journ. of Obstet. and Gynecol.*, January, 1931, p. 26) records statistics of 55 cases of nephritis in pregnancy, and defines three main classes: the nephritis of pregnancy—a syndrome of renal fatigue; eclamptic intoxication; and pre-existing renal and/or vascular disease which has been exacerbated by the pregnancy. In a fourth group he places cases having other complications such as cardiac disease, thyrotoxicosis, infections, and obstetric difficulties. In the first of these classes, comprising about 40 per cent. of cases of nephritis in pregnancy, the most notable characteristics are the abrupt onset of symptoms at eight months; slight raising of the arterial tension; albuminuria and moderate oedema; the late average date of delivery; and the excellence of the late results. These cases contrast sharply with the abrupt onset of acute symptoms in the eclamptic class. In the author's opinion the evidence incriminating the placenta is stronger than that which points to other factors, such as foetal elements. He believes that administration of alkalis to the point of alkalinization of the urine in nephritic patients is inadvisable and risky. Diuresis is best induced by giving water and acid salts, if necessary, such as calcium chloride, calcium nitrate, or ammonium chloride. The reduction of excessive arterial tension is accomplished by administering orally bismuth subnitrate in daily doses of 10 grains. Prognosis may be based on the degree of anaemia and of renal functional impairment; the age of the patient; and the promptness with which improvement follows delivery.

234 Intrauterine Lipiodol Injections in Sterility

G. COTTE (*Lyon Méd.*, January 4th, 1931, p. 3) concludes from his own experience and from cases reported in the literature that the employment of lipiodol injections of the uterus and tubes for the diagnosis of sterility of tubal origin in certain cases cures the sterility itself. He prefers this method to insufflation with air or carbon dioxide, since with it more cures are obtained. Two reasons are given to explain this action of lipiodol: as in insufflation, tubes with impaired permeability are cleared of all obstruction; and secondly, owing to its high iodine content, the drug has a local action on the tubal epithelium. Cotte believes that the accidents which have been reported are due much less to the method than to its ill-timed use. Nevertheless, as with all intrauterine instrumentation, these injections are not without some risk, and should only be given in those clinically negative cases in which they can furnish necessary diagnostic information. Before their administration a minute clinical examination should be made to determine the absence of gynaecological lesions, such as lesions of the adnexa or recent salpingitis, which would contraindicate their use. To avoid all inflammatory reactions, the injections should preferably be given during the week following the menstrual period. It is advisable that in all cases when radiography shows that the lipiodol has overflowed from the os the patients should be kept in bed for twenty-four hours.

235 Pregnancy Complicated by Tabes

The occurrence of repeated pregnancies in a tabetic patient is reported by J. T. WILLIAMS (*New England Journ. Med.*, January 15th, 1931, p. 119), who states that in such circumstances the gastric crises may be interpreted erroneously as pernicious vomiting or as the onset of premature labour. The foetal movements are often unperceived by the patient, and labour is painless; the second stage, however, is often ineffective, owing to the failure of the abdominal muscles to assist the uterine contractions. The pregnancy causes a temporary increase in the ataxia, due to the change in the patient's centre of gravity. The degeneration in the column of Goll in tabes results in uterine anaesthesia, and also in rapid dilatation of the cervix. Discussing the nervous supply of the uterus, Williams suggests that the cerebrum may exert an inhibitory action, one indication of this being the augmentation of uterine contractions, which can be observed during Caesarean section under spinal anaesthesia.

Pathology

236 The Influence of Intense Effort upon the Leucocyte Count

H. GOUNELLE and J. WARTER (*Arch. des Mal. du Cœur*, December, 1930, p. 757) have investigated the effect of intense muscular exertion upon the total and differential leucocyte counts in trained and untrained men. The subjects of the first group were young soldiers, while the second consisted of medical students; the test exercise was running a distance of one or two kilometres, examinations of the blood being made before, immediately after, and half an hour after the test. It was found that this exercise was followed at once by an increase of 30 to 40 per cent. in the total leucocytes in the trained individuals, whereas in the untrained an increase of 70 to 100 per cent. was produced. The "leucocytosis of movement" was only transient, and in all the subjects had disappeared within half an hour after the test. A reduction in the percentage of polymorphonuclear neutrophils was observed to follow intense effort, but the actual numbers of these cells were, if anything, increased. A large percentage of and actual increase in the numbers of circulating lymphocytes and monocytes accompanied the relative reduction in neutrophil polymorphs. The differential white count returned to normal within half an hour of the test exercise. The authors refer to earlier work in which contraction of the spleen and increase in red cells of the blood were found to accompany muscular exertion. They believe that this action of the spleen underlies the change they have demonstrated in the leucocyte count, but that other factors also play a part. The practical importance of their work lies in the technique of the leucocyte count; a patient in whom this examination is to be made should remain at rest for about half an hour before the blood is drawn.

237 The Action of Liver Extract on Blood Regeneration

M. P. CRANE, ISABEL HOWARD, and W. P. MURPHY (*Amer. Journ. Med. Sci.*, December, 1930, p. 803) have investigated the effect of administering daily a potent liver extract, equivalent to 800 grams of liver, for a period of 14 days to four normal young men; there were no striking changes in the blood. There was a small rise in the number of the red cells, but it was never more than 700,000 per c.cm. above the average control figure. There was a similar tendency to raise the haemoglobin figure during the latter days of the test, and a slight rise in the reticulocytes reaching 3, 1.3, 1.4, and 1.1 per cent. respectively. The authors point out that, although this percentage is small on a basis of 5 million red cells per c.mm. in circulation, it would correspond with actual reticulocyte figures of between 150,000 and 55,000 per c.mm., and with a 15 per cent. reticulocyte rise in a patient with 1 million red cells, as met with in severe pernicious anaemia. The rise was transitory, persisting only for one to three days.

238 Structure of Rheumatic Nodules

M. H. DAWSON and R. H. BOOTS (*Journ. Amer. Med. Assoc.*, December 20th, 1930, p. 1894) comment on the close histological similarity between the subcutaneous nodules which occur in rheumatic fever and rheumatoid arthritis. Each nodule consists of a central area of necrosis, due apparently to gelatinous swelling and disintegration of collagen bundles; round this is a zone of large mononuclear cells disposed radially, and, further outwards, a sheath of dense and avascular fibrous tissue. The arterioles and capillaries in the surrounding tissues show a subendothelial deposit of fibrin, with hyperplasia of the subendothelial cells, narrowing or occlusion of the lumen, and in some instances canalization of the hyperplastic intima. Their elastic coats are split, and there may be polypoid protrusions into the vessel lumen. Around the vessels there may be detected an infiltration by large mononuclear and small round cells. Bacteriological investigations were entirely negative. No relationship was demonstrated between these nodules and those of syphilis, gout, or tuberculosis.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

239 Respiratory Disorders and Dental Infection

Discussing the part played by diseased teeth in the causation of various respiratory disorders, W. LINTZ (*Med. Journ. and Record*, January 21st, 1931, p. 62) records a series of 100 patients, and concludes that focal dental infections give rise to respiratory affections through the circulation, and not as the result of aspiration. Bacterial sensitization and autogenous immunization are, moreover, important factors in respiratory allergic conditions. Without radiological examination it is impossible to be certain that dental disease is not present. In the author's series the average loss of teeth for pleurisy was 37.5 per cent., for bronchial asthma 37 per cent., for tuberculosis 25 per cent., and for bronchitis 15.75 per cent., the normal figure for the general population. In the case of asthma, Lintz found that the best results were obtained only after the eradication of all focal infection and the immunization of the patient with an autogenous vaccine prepared from the saliva or the pus from decayed teeth sockets. He adds that the same holds good in hay fever. Immunization before dental extraction averts the occurrence of aggravated symptoms.

240 Uraemia without Kidney Disease

P. MEYER (*Klin. Woch.*, January 24th, 1931, p. 155) refers to several recorded cases in which prolonged vomiting led to uraemic symptoms, sometimes with convulsions. Diagnosis is rendered difficult by the presence of a high non-protein nitrogen and uric acid content of the blood, and in some cases also by the presence of albuminuria or anuria. At the necropsy no significant changes are found in the kidney. Meyer records two cases in detail; in one the vomiting was due to malignant pyloric stenosis, and in the other to the occurrence of a "vicious circle" after gastro-enterostomy. The second patient recovered rapidly on insulin and carbohydrates, and the blood non-protein nitrogen fell from 163 to 31 mg. per 100 c.cm. in five days. The author discusses the possible parts played by acidosis, chloride loss, dehydration, and starvation in the causation of the syndrome. The high non-protein nitrogen may, he thinks, be an attempt at compensation for the loss of other crystalloids (especially sodium chloride), or may represent breakdown of proteins owing to starvation. Anuria due to dehydration will increase the blood nitrogen still further. The occurrence of albuminuria is possibly due to a change in the constitution of the blood proteins.

241 Localization of Myocardial Infarction by the Electrocardiogram

T. PADILLA and P. COSSIO (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, January 16th, 1931, p. 54) refer to earlier investigations in which the electrocardiographic modifications characteristic of myocardial infarction have been established. The usual changes are an early alteration in the ST or RT segment, and, later, deformity or inversion of the T-wave. From a study of 35 patients, of whom 25 were observed and examined by the electrocardiograph at the onset of the illness, the authors describe the features representing apical infarctions and those corresponding to necrosis at the base of the ventricles. In the former group there is an initial convexity of the RT segment upward in Lead I and downward in Lead III, leading later to inversion of the T-wave in Lead I. In basal infarctions the initial deviation of the RT segment is downward in Lead I and upward in Lead III; consequently, in the later stages an inversion of the T-wave in Lead III develops. Occasionally it is found that the electrocardiographic changes indicate myocardial infarction while suggesting no definite apical or basal localization. In such patients certain other electrical anomalies not in themselves characteristic of infarction may give some information as to the site of necrosis. These are extrasystoles, defects in conduction of the bundle of His or of its branches, and auricular fibrillation. The various grades and varieties of heart-block are of most value in localization, and the authors describe a case in which complete heart-block associated with a basal type of ST deviation pointed to thrombosis in the right coronary artery, leading to infarction in the upper part of the posterior wall of the left ventricle and the septum. Auricular fibrillation has also been observed in association with curves pointing to basal necrosis, but this arrhythmia and that due to extrasystoles are of doubtful value in localization.

242 Incidence of Diphtheria

BÜRGERS (*Deut. med. Woch.*, January 2nd, 1931, p. 6) cites statistics to show that diphtheria has presented an increased incidence and severity in recent years throughout Europe. It is noteworthy that the last peak of epidemic diphtheria in Germany was during the years 1849–80, and in America in 1860–81; subsequently the curve fell, reaching its lowest level in 1923. Although diphtheria is known to have been very prevalent in the 16th and 17th centuries, too little is established about the behaviour of this infection to justify precluding a fresh rise during the next thirty years of the present century. Bürgers thinks it best in any case to comtemplate the possibility of such an occurrence, and to institute prophylactic methods accordingly, especially in the form of active immunization by inunction. He adds that the fact that the increased incidence of diphtheria during the war was strictly circumscribed and only of transient duration, while the latest outbreak has involved almost every district in Prussia and considerable parts of Europe, should at least awaken apprehension.

Surgery

243 Surgical Treatment of Goitre

J. L. DE COURCY (*Amer. Journ. Surg.*, December, 1930, p. 482) discusses the surgical aspects of goitre, including pre-operative and post-operative care, the anaesthesia of choice, and the results of thyroidectomy in a large number of cases. Lugol's solution, in 10-minim doses, was given three times a day for the first ten days, and continued up to the time of operation and throughout the post-operative reaction, after which 10 minims were given daily for eight weeks. This procedure has been found of great benefit, the surgical mortality being reduced to 1 per cent. and the pre-operative mortality to 0.2 per cent.; it controls the symptoms, lowers the metabolic rate, and renders the thyroid gland oedematous, thus putting the secreting cells out of action and preventing the absorption of toxic substances. The most satisfactory form of anaesthesia in goitre operations was found to be nitrous oxide and oxygen. Treatment of toxic goitre must be by thyroidectomy; in mild cases a one-stage bilateral partial lobectomy may be performed, the wound being closed without drainage, but for very large hyperplastic thyroids a two-stage operation is desirable. If thyrotoxicosis is to be relieved completely, not less than four-fifths of the glandular substance must be removed, and in all cases extreme gentleness is required in handling the gland. In a series of 388 operations, 92 per cent. of which were for cases of toxic goitre, there was only one death. It has been found that thyroidectomy was of value in cases of mental disturbance associated with goitre, and of fourteen patients so treated, twelve have made complete mental recoveries; in thirteen of these patients there was a hyperplastic goitre. Mental improvement was gradual during a period of several months.

244 Treatment of Urethral Stricture

In tight strictures of the urethra J. W. VISHER (*Med. Journ. and Record*, January 21st, 1931, p. 87) recommends the injection of 15 minims of adrenaline added to half an ounce of 4 per cent. novocain solution, some being carefully forced through the strictured area, where it is retained for fifteen minutes. If there has been recent instrumentation, sterile water should be used to dilute the adrenaline, since the novocain may be rapidly absorbed from the damaged surfaces. The urethra is later filled with sterile olive oil, and the penis is raised so that all the oil does not escape. Filiform bougies are now introduced, one after another, and a careful search is made for the opening. Sometimes, if they fail to pass, it is well to depress the penis and to make a fresh attempt, since this may direct them towards the opening in the urethra. The author has found this procedure successful in a large percentage of cases. The adrenaline relieves the oedema and congestion in the strictured area, and greatly facilitates the passage of the bougie.

245 Total Resection of the Stomach

E. BERESOW (*Zentralbl. f. Chir.*, January 31st, 1931, p. 266), who records two personal cases, states that total resection of the stomach was first performed by Schlatter in 1897. In 1927 Uhlhorn was able to collect 30 cases which had ended in recovery. In most of them the Billroth II operation had been performed, since it is an undoubtedly milder operation; it is apparently less dangerous than any other owing to the lesser degree of tension which it entails. The author remarks that, although the first statement is incontestable, there is some doubt as to the truth of the second, since with proper technique the oesophagus and duodenum can be brought together with hardly any tension. Beresow's patients were both operated on by the Billroth I method under local anaesthesia for carcinoma of the stomach. The first was a man, aged 51, whose illness was of ten months' duration; death ensued on the day after operation. The second patient was a man, aged 50, who had been ill for five months; his recovery was uneventful.

246 Adenomatous Goitres

M. SCHTEINGART (*Rev. Sud-Amér. de Méd. et de Chir.*, December, 1930, p. 1193) discusses the different varieties of thyroid enlargements and their corresponding treatments. He rejects the view that all goitres should be operated on without delay, and calls attention to the fact that in some cases the primary cause of the abnormality is to be sought outside the thyroid gland. Radiotherapy and iodine are not necessarily always contraindicated in the case of adenomatous goitre associated with toxaemia; the first form of treatment is, however, unsuitable for adenomatous goitres without hyperthyroidism, and for patients whose metabolism is normal or subnormal. Early operation is required in cases of thyroid enlargement causing respiratory embarrassment, and when large toxic adenomatous growths are associated with symptoms of hyperthyroidism. The author reports observations on 50 cases of non-toxic adenomatous goitre and 125 cases of hyperthyroidism complicating adenomatous enlargement of the thyroid gland.

247 Treatment of Urethral Caruncle

A. G. FLEISCHMAN (*Urol. and Cut. Rev.*, January, 1931, p. 42) states that for a number of years surgical excision has been regarded as the accepted procedure for dealing with urethral caruncle. It presents, however, the following disadvantages: difficulty in checking haemorrhage; development of cicatrices which later become urethral strictures; greater frequency of recurrences; delay in healing of the wound; and predisposition to future urethral deformity. Cauterization by chemical agents or the actual cautery entails similar disadvantages. On the other hand, destruction of caruncles by the high-frequency current, first introduced by Ballenger in 1917, has the disadvantages that there is no haemorrhage nor charring of the tissues, it has deep penetrative properties, and recurrences are few. Urethral deformity is rare. The procedure can be performed under local anaesthesia.

Therapeutics

248 Lipiodol Injections in Neuralgia and Rheumatic Pains

Following Sicard in using local injections of lipiodol for the relief of pain, F. COSTE (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, February 2nd, 1931, p. 103) finds that this drug is harmless to the tissues, and tends to produce circulatory changes modifying pathological processes; although it lacks the immediate anaesthetic effect of novocain the relief induced is more permanent. In some cases the subperiosteal injection of lipiodol, at the point where the sciatic nerve crosses the ischial ramus, appears to cause the rapid breaking down of adhesions. When the seat of trouble is high the paravertebral injection of novocain at the level of the fifth lumbar vertebra often gives good immediate results, which may be maintained by immediately introducing a solution of sodium iodide. Coste tries novocain first, and if the improvement lasts several days he repeats the injection. If it is fleeting, he follows up with 15 c.cm. of lipiodol, given by the low epidural route. Another class of cases well treated by local injection is the "dry arthritis" group, especially monoarthritic conditions such as the "lipo-arthritis" of Weinenbach and Francon, common in women at the menopause and affecting the knee-joint. Sicard injects lipiodol subperiosteally at the inner aspect of the upper tibial surface to infiltrate the peri-articular tissues; intra-articular injection is to be avoided, since it does no good, and often causes painful inflammatory reactions. Coste remarks that this method has proved less successful in "morbus coxae senilis," in which condition radiant heat is still the treatment of choice. In lipo-arthritis of the knee, however, the injection of lipiodol has given far better results.

249 Treatment of Uraemia by X Rays and Thyroxine

Several observers have recorded a diuretic effect from radiation of the kidney by *x* rays, and A. H. MÜLLER (*Deut. med. Woch.*, February 6th, 1931, p. 230) describes two cases of uraemia which were treated by a combination of *x*-ray and thyroid therapy with good results. The first case was one of arterio-sclerotic kidney with pre-uraemic symptoms, in which diuresis, with improvement in subjective symptoms, occurred nine days after treatment was commenced. The non-protein nitrogen of the blood sank from 100 to 40 mg. per 100 c.cm., and the patient was later discharged much improved. The second case—subchronic glomerulonephritis becoming uraemic (non-protein nitrogen, 97 mg.)—showed a diuresis with diminution of oedema in seven days, and the patient was discharged without oedema or uraemic symptoms. Six months later he showed no fresh signs of renal failure, though albuminuria continued. Both patients had previously failed to respond to the usual dietetic treatment.

250 Administration of Iron

S. R. METTIER and G. R. MINOT (*Amer. Journ. Med. Sci.*, January, 1931, p. 25) report 10 cases of secondary anaemia associated with defective diet or chronic blood loss which responded well to iron therapy. The daily administration of iron was: (1) small doses with an alkaline meal; (2) small doses with an acid beefsteak meal followed (3) by a fourfold to twelvefold increase in dose of iron. The reticulocyte response following each of these procedures was recorded. The acid had no demonstrable effect on blood formation, acting apparently only as a medium to maintain the *p*H of the gastro-intestinal contents approximately constant. The response of the bone marrow to (1) was slightly less than to (2), and it was concluded (particularly because the same dose of iron administered with meat at acid *p*H caused a prompt second response of reticulocytes) that iron is more potent for blood formation when absorbed from an acid than from an alkaline medium. The response induced by procedure (3) indicated that the small dose was not optimum, and emphasized the importance of giving full doses of iron to anaemic patients.

Dermatology

251 Yeast Factors in Superficial Dermatitis

S. W. BECKER and E. B. RITCHIE (*Arch. Derm. and Syph.*, November, 1930, p. 790) believe that fungous infections are more common now, and are recognized more frequently. Several dermatoses of unknown origin yield fungi on culture, and it is uncertain whether these are causal agents or secondary invaders. The presence of hyphae denotes fungous infection of which antecedent (plantar) dysidrosis or intertrigo may be a predisposing cause. Cryptococci have been found in seborrhoeic dermatitis and infantile eczema, while these organisms and yeasts have been obtained from various forms of intertrigo as the result of macerating epidermal scales or scrapings in an aqueous solution of caustic potash, followed by subculture. The present authors conclude that while thrush is due probably to the *Oïdium albicans*, interdigital and genital erosions offer a soil favourable to other organisms. Oïdium was found in all cases of blastomycetic interdigital erosion; *Monilia* and hyphal forms have been found in the same interdigital space. Several cases of genital thrush occurred in diabetic women, but it is not confined to that sex. The authors regard oïdium as causative because it is so constantly present in thrush, and parasiticide treatment is quickly curative while soothing and protective applications are not. Other organisms do not react so readily to parasiticides. The so-called mosaic fungus is, they find, really a collection of organic material, possibly derived from inflammatory dermal changes. Caution is advised in attributing pathogenicity on insufficient evidence.

252 Cutis Marmorata (Livedo Reticularis)

N. E. ARONSTAM (*Urol. and Cut. Rev.*, December, 1930, p. 813), who records an illustrative case, states that this condition, which is also known as cutis marmorata or marble skin, consists in a mottling or speckling of the skin in grotesque reticulated formations, bearing a violaceous or dusky marbling almost bordering on the livid. Its configuration resembles serpentine segments of circles, semicircles, and triangles, occasionally relieved by annular or circinate figures. It occurs as a rule in young people, very rarely during middle age, and is extremely rare in senescence. Aronstam's patients were mainly girls at the age of puberty, in whom it constitutes a source of physical and mental annoyance. Livedo reticularis has been found associated with hepatic cirrhosis, varicosities, erysipelas, colds and arthritic conditions, congenital myxoedema, mongolian idiocy, syphilis, tuberculosis, and scrofula. Alcoholism and rickets have also been regarded as probable etiological factors. Aronstam suggests that the condition is due to hormonic deficiency, since in the majority of cases it appears in girls at the onset of puberty. Pathologically, as Renaut has shown, livedo is the result of the tuft-like arrangements of the blood vessels distributed throughout the affected parts.

253 Heredity in Psoriasis

[illegible]LES (*Med. Journ. and Record*, January 21st, [illegible] p. 80) denies that psoriasis is a congenital disease in the ordinary sense of the term, but agrees that it [illegible]n inherited diathesis, though this is associated [illegible]ing cause. The incidence of the condition is [illegible]her in psoriatic families than in the remainder [illegible]ation. He found that the familial incidence [illegible]286 private patients was 23.8 per cent., and in [illegible]nt. of these a parent, grandparent, or child [illegible]. The familial incidence in 23 clinic patients [illegible], 9.5 per cent., and none of the parents was affected. [illegible]iles attributes this discrepancy to the lack of knowledge about their parents shown by his clinic patients, many of whom were of foreign ancestry. He comments on the difference of opinion among authorities as to the inheritability or otherwise of this disease, and adds that in so common a skin affection (4 per cent. of all dermatoses) it is not surprising to find it occurring frequently among the relatives of psoriatics.

Obstetrics and Gynaecology

254 Conservative Operation for Adnexal Inflammation

P. MALCOVATI (*Ann. Ostet. e Ginecol.*, December, 1930, p. 1206) describes favourable results in 52 cases of chronic or latent adnexal inflammation treated under Alfieri's direction by laparotomy, conservation of the whole or occasionally a portion of the uterus, and excision of one or both tubes and/or one or both ovaries. Six cases are included in which salpingostomatoplasty was performed on one or both sides; in two of these the patient subsequently became pregnant. The inflammation was tuberculous in 7, gonorrhoeal in 12, septic in 21, and of doubtful cause in 12. A Mikulicz drain was used after eight of the operations. No deaths occurred, and cure was complete in nine out of ten, the menstrual function being retained; it became regular in over one-half of the cases. Those who after the operation were left with a possibility of conception numbered twenty-four; of these (after one to seven years) five became pregnant and went to term, and one had an abortion. Two of these six conceptions were in patients sterile before operation; these were cases of marital gonorrhoeal infection, in which surgical treatment had not been unduly delayed. Of six cases in which both tubes, and both ovaries excepting a minute fragment, were excised, menstruation continued in two.

255 Cervical Lacerations

W. H. EMRICH (*Amer. Journ. of Surg.*, December, 1930, p. 557) advises the immediate repair of the post-partum cervix as a routine procedure, in order to prevent subsequent chronic ill-health. He describes the use in this connexion of a specially designed vaginal speculum and retractor, which enables good vision of the cervix to be easily obtained. If the cervical tears are bleeding profusely, a suction pump is used until the haemorrhage can be controlled by suture. The cervix is picked up by sponge forceps and its circumference carefully examined, lacerations being closed by interrupted "through-and through" sutures of No. 4 forty-day chromic catgut from their extremities to the os. The anterior and posterior lips are closely approximated, but no sutures are drawn tight. An iodoform gauze strip is retained for twenty-four hours in contact with the cervix; ergot is administered to prevent clot formation and the consequent tearing out of the sutures. Emrich claims that this procedure diminishes the post-partum discharge, shortens convalescence, reduces the liability to leucorrhoeal conditions, and may be considered as a preventive of subsequent malignant development.

256 Treatment of Abortion

In the opinion of T. V. PEARCE (*Journ. Obstet. and Gynaecol. of the British Empire*, Winter, 1930, p. 769) the best treatment of abortion consists in early and gentle evacuation of the uterus, and haemorrhage and sepsis are cardinal indications for this. Each manipulation of a potentially infected uterus after abortion must be regarded as amounting probably to inoculation with living organisms, and any pelvic examination or treatment must therefore be conducted with the utmost gentleness. The first step in treatment consists in intrauterine douching with hot eusol. In emptying the uterus subsequently digital instead of instrumental dilatation of the cervix often suffices; removal of foetal and placental remnants, located by the finger, is best effected with ovum forceps. The administration of morphine will often render a general anaesthetic unnecessary. To empty the uterus is more urgent in haemorrhage than in sepsis. Ecbolic drugs are uncertain in their action on the uterus after an abortion, and before term such a uterus does not respond readily to the intramuscular injection of pituitary extract, even in large doses. The author has, however, found that haemorrhage is controlled immediately by the direct injection of pituitary extract into the fundus uteri; the uterus, which must be known to be empty, is pressed against the suprapubic abdominal wall by one hand in

the vagina, and the needle is thrust into the uterine muscle through the skin and anterior sheath of the rectus. Such administration of pituitary extract renders it unnecessary to pack the uterus or vagina for haemorrhage.

257 Eclampsia in China

G. KING (*Nat. Med. Journ. of China*, December, 1930, p. 653) believes that the incidence of eclampsia is unduly high in China, and agrees that there is a definite preponderance of cases in the autumn and winter. In a series of 33 cases encountered at the Peking Union Medical College Hospital during the eight years 1922 to 1930, 24 of the patients were primiparae, and the average age was 24. Of the 9 multiparae, 6 had already given birth to upwards of six children each, and 4 of these had had previous toxaemic pregnancies. In only 12 per cent. of the cases had there been ante-natal care, and in these no deaths occurred. The importance of regular ante-natal examination of the urine and blood pressure is emphasized. The eclamptic symptoms appeared before labour in 60 per cent. of the cases; during labour in 30 per cent.; and after labour in 10 per cent. Definite changes in the ocular fundus were detected in the majority. Conservative treatment, based upon Stroganoff's method, is favoured by the author, Caesarean section being employed only in exceptional cases.

258 Gonorrhoea of the Rectum

According to N. TEMESVÁRY (*Zentralbl. f. Gynäk.*, December 13th, 1930, p. 3140) gonorrhoea of the rectum was found in one in five women (prostitutes excluded) admitted to hospital for gonorrhoea. Of 261 cases, in 88 the first microscopical examinations, in 70 the second or third, in 55 the fourth to seventh, and in the remainder the eighth to eighteenth revealed the gonococcus in the rectum. Only 5 per cent. had symptoms pointing to affection of the rectum, and gross rectal objective signs were present in but four patients. Treatment, continued conscientiously for an average period of 45 days, is almost certain to be successful. In the morning, after stool, 125 grams of a 2 in 1,000 trypaflavine solution are introduced into the rectum; at night there is injected through a suitable syringe silver nitrate 1 gram, balsam of Peru 10 grams, and yellow vaseline to 100 grams.

Pathology

259 Immunization against Vaccinia by Virus-Serum Mixtures

C. P. RHOADS (*Journ. Exper. Med.*, February, 1931, p. 185) describes the successful immunization of rabbits against vaccinia by the inoculation of neutral mixtures of virus and immune serum. The virus used was a strain of neurovaccine, kept potent by fairly frequent animal passage; it was maintained in the form of a 10 per cent. suspension of rabbit brain. An immune serum was prepared by bleeding rabbits three weeks after recovery from acute pustular vaccinia. In most instances 0.2 c.cm. of serum sufficed to inactivate an equal amount of a 1 in 100 dilution of a virus which gave rise to lesions in a dilution of 1 in 100,000. For purposes of vaccination a 1 in 200 dilution of virus was mixed with immune serum, and the mixture, which gave rise to no reaction when injected intradermally in rabbits, was either instilled into the nose or inoculated subcutaneously. The nasal instillations were given at one-day or two-day intervals until three to five doses had been applied; in the subcutaneous series three injections were given of 2 c.cm. at intervals of four days. Six weeks after the last inoculation the rabbits were tested for immunity by the intradermal inoculation of graded doses of virus. The results showed that, provided the serum was neither under- nor over-neutralized, the virus-serum mixtures produced a satisfactory immunity response. If an excess of serum was present the resulting immunity was slight; if insufficient serum was used, a typically delayed vaccinia lesion appeared when the mixture was inoculated intradermally into a control animal. By suitable mixtures the author has therefore produced immunity in rabbits with no local lesion and only a minimum systemic reaction.

260 Serum Reactions in Carcinoma

O. SIEVERS (*Finska Läkaresällsk. Handlingar*, January, 1931, p. 7) has carried out at the Sero-Bacteriological Laboratory of the University in Helsingfors investigations into the specificity of Hirszfeld's complement-fixation test and Kahn's albumin-A test in relation to carcinoma. In 46.8 per cent. of 62 cases of carcinoma a positive reaction was obtained to Hirszfield's complement-fixation test, which was performed altogether on 296 serums. The reaction was usually negative in those cases in which the carcinoma was of recent origin or superficially situated. It was also negative, as a rule, when the diagnosis of carcinoma was uncertain and in the presence of other types of new growth. In all the 25 Wassermann-positive serums examined the carcinoma reaction was also positive. In certain other cases, with a negative Wassermann reaction but with a history of syphilis, a positive carcinoma reaction was obtained. This reaction was positive, however, in only 10.7 per cent. of the non-syphilitic controls. Kahn's albumin-A reaction was investigated in 341 serums, and was found to be positive in 80.8 per cent. of the cases associated with new growths. When the tumours were small or superficial this reaction was usually negative. Repetitions of the test, when a positive reaction had been obtained to the serum of a tumour case, continued to be consistently positive. Among 233 control cases without new growths, positive reactions were obtained in 30 per cent.; and when some of these tests were repeated the reaction was sometimes negative. Sievers concludes that an albumin-A reaction, which is sometimes positive and sometimes negative in the same case, is suggestive of the absence of a new growth.

261 Etiology of Psittacosis

G. EIGLER (*Zentralbl. f. Bakt.*, February 3rd, 1931, p. 406) describes the finding of a tiny Gram-negative influenza-like cocco-bacillus in the sputum of nineteen patients suffering from psittacosis and in two parrots. During the height of the disease this organism was present in enormous numbers in the sputum, and could be cultivated on blood agar; during convalescence, though it was found in some patients in large numbers, mostly intracellularly, it could not be recovered in culture. The organism would grow only on media containing blood; blood agar and Levinthal's medium were found the most satisfactory. For isolation, blood agar plates were best; on this medium the colonies after twenty-four hours appeared as clear transparent droplets 0.5 mm. in diameter; after two or three days they increased in size, became flatter, and took on a greenish tinge. Injection of parrots with pure cultures of this organism, even in small doses such as 1/100 of a loopful, gave rise as a rule to a fatal disease resembling natural psittacosis. Of great interest was the discovery that pure cultures were able to pass through Berkefeld V and N candles, though not through W candles. In the author's opinion this observation may help to bridge the gap between his findings and those of the English workers who believe that psittacosis is due to a filterable virus.

262 The Bactericidal Power of the Blood in Alcoholism

S. SEGRE and A. ANGYAL (*Giorn. di Batteriol. e Immunol.*, January, 1931, p. 80) examined the bactericidal power of the whole blood and plasma on *B. typhosus* and the cholera vibrio both in normal persons and in alcoholic subjects, and found that the latter showed a marked diminution of this power without there being any numerical change in the leucocyte count. The alcoholic subjects were inmates of an asylum and were mostly suffering from confusional states, hallucinatory psychoses, and tremors, while the controls, though not complete abstainers, were very moderate in their use of alcoholic beverages.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

263 Myocardial Diseases

H. L. HEIMANN (*Journ. Med. Assoc. of South Africa*, January 10th, 1931, p. 8) remarks that estimation of the myocardial integrity is difficult when obvious defects such as valvular disease are absent. All valvular lesions except the congenital forms are associated with myocardial defect, but the onset is obscure and the symptoms are indefinite. The recognized terminations of myocardial disease are (1) congestive failure, (2) angina, (3) coronary thrombosis, (4) the Stokes-Adams syndrome, (5) ventricular fibrillation, and (6) myocardial rupture; two or more of these may be associated. Ventricular fibrillation and ventricular rupture are most rapidly fatal, and congestive failure is the slowest. Chloroform anaesthesia may produce fatal ventricular fibrillation in a healthy myocardium; as a terminal phenomenon fibrillation connotes a final effort of dying muscle. Rupture is rare, but it may result from an infarction or from fibrosis due to a gumma. The Stokes-Adams syndrome may terminate in death during asystole. Congestive failure commences clinically with dyspnoea, but this is not pathognomonic. Cyanosis may occur, and a history of rheumatism or syphilis may assist diagnosis. Rheumatic myocarditis is associated generally with valvular lesions, usually mitral stenosis; it is seldom cured. Acute congestive failure, due to a transient condition such as severe tachycardia—for example, in sea-sickness—may subside completely, or remissions may occur. Congestive failure may be due to hyperpiesia, chronic nephritis, cardio-vascular syphilis, or acute infective carditis. Acute failure may ensue in the exanthemata. Angina may be fatal in a case which has shown no previous physical signs or symptoms. The quality of the heart sounds is often misleading in the diagnosis of myocardial degeneration, but the "gallop-rhythm" and "tick-tack" sounds are more reliable. The first always indicates myocardial breakdown, and is often accompanied by pulsus alternans. Exercise tolerance tests are of little value in prognosis, except when angina supervenes. Permanent hyperpiesia and a fall in blood pressure after exercise are important signs of severe myocardial inefficiency. Myocardial degeneration may develop in prostatic hypertrophy, and in toxic conditions such as exophthalmic goitre. Treatment of the thyrotoxic condition diminishes the myocardial lesion. Dysenteric paroxysmal tachycardia is of toxic origin.

264 Asymptomatic Neurosyphilis

J. E. MOORE and H. H. HOPKINS (*Journ. Amer. Med. Assoc.*, November 29th, 1930, p. 1637) present data from 123 cases, observed for an average period of seven years, of asymptomatic neurosyphilis; 55 were of the early and 68 of the late type. The patients were classified in three groups, according to the degree of the spinal fluid changes. The presence of a Group 3 fluid (maximal changes of the paretic formula) is strongly presumptive of a liability to the development of parenchymatous neurosyphilis. Eleven of the patients had died at the time of reporting, 5 from neurosyphilis. As the observation period was short, 38 questionable cases are noted by the authors as being likely to develop further. Spontaneous regression to the normal of positive spinal fluids is held to be rare. The authors believe that the presence of a positive fluid in patients with early or late syphilis is of grave prognosis, even though they present no objective neurological abnormalities; the ultimate danger to the patient is roughly proportional to the intensity of the spinal fluid changes. A negative fluid is, subject to certain qualifications, a practical degree of safety as regards the subsequent development of neurosyphilis. From these facts it is concluded that a routine spinal puncture is indispensable in every syphilitic subject.

265 Sex and Age Incidence in Asthma

K. H. BAAGÖE (*Ugeskrift for Laeger*, January 22nd, 1931, p. 79) has investigated 311 cases of asthma; 110 of these were in-patient hospital cases, and the remainder out-patients. There were 175 males to 136 females, and the excess of the former over the latter was most marked among the patients whose asthma had begun within the first five years of life (90 males to 60 females). This fact coincides with the observation that the general morbidity is higher among boys than girls in the first years of life. The sex incidence showed no difference in the case of patients whose asthma had begun between the ages of 5 and 40 (68 males to 69 females), but after this age the ratio of males to females was as 17 to 7. Among 155 asthmatic children 15 years old or younger, there were as many as 120 whose asthma had begun before they were 5 years old; but among 138 asthmatics over the age of 20, the age at onset of the first symptoms was fairly evenly distributed over the years of childhood and adult life. There would thus seem not to be any special age, as far as these 138 patients were concerned, at which persons are specially liable to develop asthma. In 293 cases the cutaneous reactions to 25 different substances were studied, and a positive reaction was obtained to feathers in 44 per cent.; to horse scurf in 10 per cent.; to cats' hairs in 9 per cent.; to cows' hairs in 8 per cent.; to dogs' hairs in 5 per cent.; to crayfish in 10 per cent.; to eggs in 2 per cent.; to fish in 2 per cent.; to lactalbumin in 2 per cent.; and to pollen in 15 per cent. Positive reactions to egg and fish were obtained only in children. While Walker found that 80 to 90 per cent. of his patients whose asthma had appeared in earliest childhood gave a positive reaction, and that the percentage of positive reactions declined as the age of onset rose, Baagöe found a positive reaction in 59 per cent. of his patients whose asthma had begun before the age of 5, and in 74 per cent. of those whose asthma had begun between the ages of 5 and 10. While only 42 per cent. of the females gave a positive reaction, 67 per cent. of the males did so.

266 Pseudo-tuberculous Measles Pneumonia

W. MIKULOWSKI (*Arch. de Méd. des Enf.*, December, 1930, p. 811), who records four illustrative cases in children aged from 2 to 4 years, states that owing to the close clinical and epidemiological connexion between measles and whooping-cough the most frequent complication of measles in young children is the so-called pertussis pneumonia, which often has a protracted course. This affection may be accompanied by dilatation of the bronchi and involvement of the pleurae with aseptic or microbial effusion of a serous, fibrinous, or purulent character closely simulating pulmonary tuberculosis. The opinion generally held regarding the reactivation of tuberculosis as the result of measles is mainly based on the clinical resemblance of pertussis pneumonia to tuberculous pneumonia. In view, however, of the inadequacy of the clinical methods of investigation, a diagnosis of tuberculosis can only be justified by a positive biological test or direct bacteriological examination of the patient's excretions or secretions.

267 Sublingual Mumps with Oedema of Tongue

E. H. R. HARRIS and E. C. BENN (*Brit. Journ. Child. Dis.*, October–December, 1930, p. 293), who record two personal cases, state that while sublingual mumps, either alone or in association with parotitis, is well known, and the occurrence in mumps of oedema of the neighbouring tissues, especially the larynx, is also well recognized, no previous cases have been recorded of oedema of the tongue secondary to sublingual mumps. Their first patient was a boy, aged 8, who was sent to hospital as a case of diphtheria. There was no clinical or bacteriological evidence of that disease, but the tongue was greatly swollen and protruded, the floor of the mouth was

oedematous, and the sublingual salivary glands were swollen and tender. The parotid and submaxillary glands were not affected. During the first few days the tongue was frequently swabbed with ice-cold water and the child was fed by nasal tube. Recovery without metastasis ensued in about seventeen days from the onset. No history of exposure to mumps was obtained, but the disease was prevalent in the town at the time. The second patient was a girl, aged 13, admitted to hospital with scarlet fever; she had been exposed to mumps a fortnight before admission. Four days later her tongue became swollen, and the sublingual glands were congested and tender. The submaxillary and parotid glands were not affected. Uncomplicated recovery followed in a few days.

268 Tularaemia in Norway

H. A. SALVESEN (*Norsk Mag. f. Laegevid.*, January, 1931, p. 28) records four cases of tularaemia, two of which belonged to the ulcero-glandular and two to the glandular type. All the patients had contracted the disease from handling hares. As far as could be ascertained the incubation period was from three to four days in each case. In one instance stomatitis developed during the disease. T. TIJÖTTA (ibid., p. 32) states that about fifty cases of tularaemia are known to have occurred in Norway, and that the number is steadily increasing. All forms of the disease have been encountered except the typhoid type. The disease has been met with in almost epidemic form in the ranches for fur foxes where the ranchers feed their animals with game, especially hares. In one case a man was infected by picking up a dead hare and looking at it, but without opening it; in another case the patient had merely carried a skinned hare wrapped up in paper. In the following instances infection through hares could be excluded—namely, two cases of the ulcero-glandular type that seemed to have been infected through the soiling of hands by the faeces of lemmings, two cases in field labourers harvesting crops in fields infested by the faeces of lemmings and field mice, one case due to the bite of a cat in a district where an abundance of dead field mice was found, one case following a fall on the ground with slight injury to the fingers, and, lastly, one case in which no explanation was forthcoming. These facts show that small rodents besides the hare—namely, lemmings and field mice—may become infected with tularaemia. Special interest attaches to the migrations of lemmings, millions of which stream in herds from the mountains to the valleys, and thus form a natural concentration of the virus of tularaemia. It had previously been noted by hunters and woodsmen that the years of lemming migrations were always followed by years in which there was a heavy mortality among hares.

269 Colonic Stasis of Hepatic Causation

E. ZEBROWSKI and E. BRATKOWSKI (*Rinascenza Med.*, January 1st, 1931, p. 5) describe a new syndrome which they call "hepatic tiflostasis"; they think it is not uncommon, since they have observed it 150 times in one year. The clinical symptoms include enlargement and distension of the abdomen associated with constipation. In almost half the cases of enlarged liver the authors detected an oval hard mobile mass, or a large broad rather soft mass occupying the whole iliac fossa. Radiograms eliminated other possible conditions, and showed that the enlarged liver in some cases was pressing on the colon, whilst in others it covered the hepatic flexure of the colon. The weight of the liver decreased the motility of the caecum; two forms of stasis are described—namely, the hypertonic (in youths) and the atonic (in old age). The syndrome is generally chronic. The acute form occurs in persons who have swallowed too much liquid or a large quantity of fruit together with kernels; it resembles appendicitis, but is distinguished from it by the enlarged liver, the vague pain, and the severe toxaemia. Treatment consists in lavage of the caecum, which in chronic cases is preceded by the administration of purgatives, and followed by the adoption of a vegetarian diet and by diathermy. Treatment is also required for the liver condition.

Surgery

270 Epidermoid Carcinoma in Sebaceous Cysts

E. L. BISHOP (*Annals of Surgery*, January, 1931, p. 109) asserts that the common sebaceous cyst or "wen" does, in a number of cases, develop into a malignant tumour. The formation of the cyst is due to mechanical blocking of the duct, followed by retention of secretion and accompanied by a continued and increased activity of the cells within the cyst. If infection, either acute or chronic, is added, there exists a suitable condition for the development of a malignant tumour. In certain cases, after the removal of a cyst, a recurrence in or near the scar may develop which is sometimes proved to be a carcinoma. Laboratory examination showed that out of 119 cysts and keratomas examined, eleven revealed definite carcinoma, two others such marked epithelial activity as to be classed as precancerous, and one case was known to be malignant. The tendency towards malignancy increases with the age of the patient; the average age for benign cysts was found to be 38, whilst in the eleven cases of carcinoma the average age was 64. The proportion of carcinoma in cysts was much greater in the female than the male, being in the ratio of 8 to 3. The scalp and face are the most common locations for simple and carcinomatous cysts, the latter being in most cases of the squamous type. Recurrence following the removal of these tumours is common, but metastases are rare though not unknown. Of the cases reported, one patient died from carcinoma of the breast with liver metastasis, which was present at the time of the removal of the cyst.

271 Treatment of Cutaneous Cancer

W. DUBREUILH (*Journ. de Méd. de Bordeaux*, December 30th, 1930, p. 979) remarks that in the *x*-ray treatment of cancer of the skin it is unnecessary and even harmful to apply deeply penetrating rays, since only the surface need be attacked. It is better to use massive doses in a single application than repeated smaller doses which may render the cancer radio-resistant. Sometimes, although the cancer cells are destroyed, the stroma is unaffected, and a papillomatous condition may ensue; this, however, disappears in the process of cure. When the cancer has extended deeper, radium gives better results than *x* rays. In secondary cancer of the skin neither radium nor *x* rays do much good; the same applies to the melanotic types, where the method of choice is diathermy or excision. The author is not in favour of electrolysis of these cases. The clinical examination rather than the histological structure is the best guide as to treatment in individual cases. Epithelioma of the upper lip is a cutaneous cancer, but in the lower lip the cancer is orificial or mucous; cure has sometimes been obtained in the latter by employing *x* rays. As regards epithelioma of the face in general, the author has come to the conclusion that cases which do not respond to *x* rays or radium are almost always inoperable. Some cases of epithelioma supervening on lupus have been temporarily cured, but never those developing on the scar of a burn.

272 The Thymus in Exophthalmic Goitre

H. SCHLEUSSING (*Zentralbl. f. Chir.*, January 24th, 1931, p. 201) has examined the post-mortem material in 12 cases of toxic goitre; most of the patients died shortly after an operation, with symptoms of hyperthyroidism. In all the thymus was found to be enlarged, and the enlargement was due to the persistence of definite thymus tissue, though the relative amount of cortex and medulla and the numbers of Hassall's corpuscles varied considerably. In some cases other lymphatic tissues in the body were also affected. Of 6 cases where operation was successfully performed, no thymus was found in 4, and the organ weighed about 1 gram and 30 grams respectively in the other two. The larger thymus contained richly calcified Hassall's corpuscles, but otherwise resembled those found in the post-mortem group. The striking contrast between the fatal cases on the one hand and the successful ones on the

other leads the author to conclude that the thymus may play a part in the production of the more serious symptoms of the disease. He suggests that an attempt might be made to reduce the size of the thymus, if present, before an operation is undertaken.

273 Post-operative Ileus

J. BRENNAN (*New York State Journ. Med.*, January 15th, 1931, p. 77) defines two main types of post-operative ileus, the mechanical and paralytic; the former is due to such conditions as adhesions, tumours, volvulus, and intussusception, while the latter is insidious in onset and often overlooked in its early stages. Both show the same clinical course, with the symptom-complex of pain, tympanites, vomiting, and complete constipation; if left unrelieved by enemas, stomach washings, passing of the duodenal tube, and the administration of sodium chloride, the complication may compel further surgical intervention. High obstruction is rapidly fatal; the occurrence of faecal vomiting must be regarded not so much as a symptom of intestinal obstruction as one of approaching death, being too late for surgical cure. There is a similarity of symptoms between the terminal stages of ileus and death from shock or gas gangrene; the fatal termination is probably due to absorption of nucleo-proteins from the degenerated intestinal lining, together with such factors as dehydration and loss of chlorides and alkalosis. Treatment is largely preventive, and necessitates a thorough knowledge of the patient beforehand, study of the blood chemistry, not too early catharsis, and a return to the normal water balance in the body, with, in certain selected cases, the performance of an ileostomy as part of the original operation. In late cases a jejunostomy relieves the toxicity best, and the intestinal contents are replaced with sodium chloride solution, 5 per cent. intravenously and 3 per cent. in large quantities subcutaneously. Some authorities advocate stripping the entire small intestinal tract over a glass tube to empty it thoroughly. Both in diagnosis and in treatment spinal anaesthesia is of value.

274 Chronic Appendicitis

L. R. CHANDLER (*Journ. of College of Surg. of Australasia*, November, 1930, p. 235) insists that it is impossible to make a proper physical examination for chronic appendicitis without assistance. In every case a complete history should be taken and the physical examination include all relevant pathological tests and an *x*-ray investigation of the gastro-intestinal tract. In this way it is possible to eliminate such conditions as peptic ulcer, cholecystitis, mesenteric lymphadenitis, pelvic inflammation, ureteral and kidney disease, diverticulitis, colitis, amoebiasis, intra-abdominal tuberculosis or early malignant disease, subcostal neuritis, hypothyroidism, cardiac disease, epididymitis, and hernia. When chronic appendicitis originates in an acute attack, removal by means of a conservative muscle-splitting operation is recommended, but a rectus incision permitting abdominal exploration is advised in cases of insidious onset. Chandler claims that as the result of paying special attention to accurate diagnosis 95 per cent. of his patients with chronic appendicitis have been cured by appendicectomy.

275 The Frequency of Adenoids in Adults

C. G. VILLANUEVA (*La Med. Ibera*, January 17th, 1931, p. 73) records five cases of adenoids in adults aged from 24 to 40, three of whom were men and two women. He maintains that adenoids are much more frequent in adult life than the textbooks would lead one to suppose. His cases illustrate the diagnostic value of posterior rhinoscopy, for the performance of which all that is needed in the way of preparation is painting the pharynx with a 1 in 10 solution of cocaine. Villanueva declares that many cases of respiratory insufficiency, catarrhal and suppurative otitis, obstinate pharyngitis, laryngitis, and similar conditions in adults are simply due to the persistence of adenoids which serve as foci of localized infection, and can easily be cured by adenoidectomy.

Therapeutics

276 Intermittent Claudication Relieved by Hot Baths

The treatment of intermittent claudication by inducing hyperpyrexia is suggested by H. G. MEHRTENS and P. S. POUPPIRT (*Journ. Amer. Med. Assoc.*, December 20th, 1930, p. 1910), who immerse their patients in baths the temperature of which is kept at 110° F. With timid patients, or on the occasion of the first bath, the temperature is 5° lower. The bath temperature is maintained until the temperature of the patient reaches a point 1½° below the fever required; the bath heat is then reduced until it corresponds with the mouth temperature of the patient. The routine bath lasts one hour, and it is repeated daily for a fortnight or longer. The milder cases were found to have the better chances of improvement, and when gangrene had started no amelioration was obtained. Such hyperpyrexial baths are considered by the authors to be indicated particularly in early cases of vascular disease with symptoms of intermittent claudication. Arterio-sclerosis may also be benefited thus, especially when there is calcification of the peripheral vessels. Complications are averted by carefully watching the patients, and modifying the treatment according to individual requirements.

277 Treatment of Leprosy

G. H. WILDISH and D. G. STOUTE (*Journ. Med. Assoc. of South Africa*, January 10th, 1931, p. 21) reports successful results in the treatment of leprosy following the alternation of intravenous injections of tartar emetic with the oral administration of potassium iodide. Commencing with 10 grains of potassium iodide three times a day for three or four days, the appearance of reactions led to this treatment being suspended, and intravenous injections of 0.25 grain of tartar emetic twice each week being substituted, the dose being increased gradually according to the degree of its tolerance by the patient. Two courses of the two drugs were usually sufficient to produce a marked improvement in the macules, the edges of which became dry, flattened, and desquamating. The pains and cramps lessened, and the general condition of the patients was obviously better. An interval of a fortnight was allowed between the two courses. The authors mention that the reactions to look for are exacerbations of any of the leprous lesions, leprotic fever, iodide reactions, and sudden impairment of the general physical condition of the patient. No patient complained of any ill effects, and the combined treatment became very popular. Some reacted to very small doses of potassium iodide, even to single doses of 2 grains.

278 Intraperitoneal Administration of Iron

C. G. GRULEE and H. N. SANFORD (*Amer. Journ. Dis. Child.*, January, 1931, p. 53) commend the intraperitoneal injection of iron in doses of 5 mg. at three-day intervals, combined with ultra-violet light irradiation, or with one or two transfusions of blood, for the treatment of children suffering from secondary anaemia. They found that although there was little or no rise in the haemoglobin or red cells during the time of injection, or about 30 days, there ensued subsequently a haemoglobin rise to the extent of 5 per cent. a week. The view is held that secondary anaemia is more particularly due to inability to use the iron taken into the body than to an actual shortage, and that the therapeutic administration of iron in this way creates a reservoir on which the body may draw. The ultra-violet irradiation was supplied, therefore, to assist the assimilation of iron, and in certain cases one or two intraperitoneal injections of citrated blood were given with the same intent. The method adopted was to inject 5 c.cm. of colloidal iron as ferric hydroxide, the solution containing 8 mg. of the metal; this standard amount was used irrespective of the weight of the child. The injections were given twice a week for four weeks, after which the child was sent home from hospital, and monthly blood

estimations were made. Control experiments were associated with the clinical investigation, and it was shown that the combination of iron therapy with blood transfusion or irradiation was essential for success. The ages of the children ranged from 9 months to 2 years, and the beneficial results were permanent. No adverse reactions occurred, except when attempts were made to increase the dosage. No benefit was obtained in cases of primary anaemia.

279 Endocrine Treatment of Gastric and Duodenal Ulcer

S. J. ESSENSON (*Med. Journ and Record*, December 3rd, 1930, p. 549) advocates the use of intramuscular parathyroid injections as the best means of stopping that hypermotility which, with hyperperistalsis, is one of the most prominent signs of gastric or duodenal ulcer. With the cessation of epigastric discomfort, vomiting, haemorrhage, and hyperacidity, surgical intervention is contraindicated, and treatment must aim at overcoming the hypermotility and pylorospasm. While atropine gives temporary relief to the latter, the most reliable remedy is parathyroid administered intramuscularly, accompanied by diet, rest, and neutralization of the hyperacidity. Notes of four cases from his clinic are given in which intramuscular injections of from 20 to 30 units of parathyroid with 1/100 grain of atropine were given daily, or every other day, with marked improvement in all instances.

280 Diathermy in Renal Colic

G. BOISSON (*Paris Méd.*, January 24th, 1931, p. 92) records a personal experience. Following previous attacks of renal colic, he was awakened one night from sleep by the characteristic pain. A hypodermic dose of sédol gave no relief. He tried diathermy, with one electrode on the dorsolumbar region and a large electrode on the abdomen. The strength of the current was raised gradually to 3,000 milliamperes, and eventually to 4,000 milliamperes. Twelve minutes from the commencement of treatment he experienced marked relief; in half an hour he was bathed in sweat. After an interval of three hours he tried a second period of treatment, following which he passed a tiny calculus of oxalic acid. In previous attacks the spasms of pain had lasted for thirty-six hours, and the calculi passed with great difficulty and suffering. Two months later he had a further attack, and at once tried diathermy again in two similar periods of treatment. Eight hours after the commencement of the crisis he passed a small oxalic acid calculus without the usual violent pain.

Ophthalmology

281 Central Nervous Control of the Ocular Mechanisms

H. A. RILEY (*Arch. of Ophthalmol.*, November, 1930, p. 640), after asserting that there is probably no synergism in the action of the extraocular muscles, and discussing the various pareses, details the causes of interference with the peripheral nervous mechanism as those capable of producing neuritic processes elsewhere (toxic, metabolic, or infectious disorders, aneurysmal, neoplastic, or traumatic), and those operating in the orbit, sinuses, or cranial cavity. He states the positions of the various nuclei in the brain stem—there not being general agreement in the case of the muscular subdivisions of the third cranial nerve—and discusses the possibility of centres for vertical and lateral deviation, convergence, and divergence. The evidence in support of all but the last is, he holds, practically conclusive. In the reflex movements of the eyeball the acoustic and vestibular divisions of the eighth connect with the oculomotor nuclei to move the eyes in obedience to auditory and postural stimuli, as in the production of nystagmus. In the second part of his paper (ibid., December, 1930, p. 885) Riley points out that while cortical and supranuclear lesions involve one or more muscles, and the reflex control of the vestibular apparatus is present, lesions of the nuclei affect only one muscle and vestibular control, and those of a specific centre influence single movements. In pure gaze paralysis there is no diplopia, while in intra-axial involvement there are associated brain-stem lesions. An isolated paralysis of the fourth or sixth nerve usually indicates a root lesion, in the absence of other neurological symptoms. Diseases attacking the nuclei, neuraxial centres, and intra-axial root fibres are: congenital aplasia; chronic progressive external ophthalmoplegia (probably an abiotrophy); intoxication—exogenous (metals, gases, and food), and intoxication—endogenous (nephritis, diabetes, gout, Graves's disease, and metabolic diseases); infections (tuberculosis, syphilis, typhoid, influenza, pneumonia, exanthems, and diphtheria); neoplastic; vascular; and traumatic. Various oculomotor syndromes are then detailed. Cramps and isolated movements mostly attack the third nerve (especially the levator palpebrae superioris, the internal rectus, and the internal muscles). Nystagmus is subdivided into the following types: oscillatory, rhythmic (in irritation), fixation (in disseminated sclerosis), unilateral (breaking of internuclear links), miners', congenital, and symptomatic, found in degenerative states, intoxications, and cerebellar and upper cervical cord disease. The extrapyramidal system controls the ocular movements by the cerebellum, and by the striatal system governed by the basal ganglia. The cerebellum probably does not endue the eye muscles with synergism. This system is attacked by epidemic encephalitis, which causes ocular deviations. Riley traces the phylogeny of cortical control, and describes the centres for voluntary movement and preservation of fixed gaze. Disturbances of cortical control always affect gaze movements (as in convulsive seizures, neoplastic pressure, inflammation, infection, and meningeal thickening); an irritative stage causes gaze deviation, preceding a stage when the gaze is paralysed. The diagnosis of hysteria is best confined to those cases which present symptoms of the higher-centre type only.

282 Pathogenesis of Sympathetic Ophthalmia

T. BARRAQUER Y CERERO (*Arch. de med., cir. y esp.*, November 15th, 1930, p. 449) remarks that numerous discordant views prevail as to the pathogenesis of sympathetic ophthalmia. One view is that the infection passes from the wounded eye to the other by the circulation; others maintain that the route is first the optic nerve of the primarily affected eye, then the optic chiasma, and lastly the optic nerve of the other eye; while according to others the first occurrence is a sympathetic irritation, which then degenerates into ophthalmia and follows the tract formed by the optic and ciliary nerves. The author holds that the last view may be rejected, since Gama Pinto has shown the fundamental difference between sympathetic irritation and ophthalmia, the former being only a disturbance of function, while the latter is an infectious disease with characteristic lesions. The supporters of the other theories declare that they have found infective organisms after death in one or both of the optic nerves or the ciliary nerves, or walls of the ciliary vessels on one or both sides. The present author, however, is inclined to regard these organisms as merely due to contamination, since otherwise they would have given rise to meningitis or septicaemia. He maintains that sympathetic ophthalmia is due to a delayed process of formation of antibodies, which is interrupted by the rapid development of panophthalmia or ocular suppuration.

283 Ocular Manifestations of Trichinosis

L. F. CARTER (*Journ. Amer. Med. Assoc.*, November 8th, 1930, p. 1420), who records three illustrative cases, states that the most spectacular and characteristic ocular symptom of trichinosis is chemosis of the bulbar conjunctiva, which occurs in 50 per cent. of the cases. The chemosis is limited to the conjunctiva overlying the external and internal rectal muscles, gradually fading at the limbus. The chemosis, which often lasts only a week, is usually associated with oedema of the lids; this later extends over the temporal and frontal regions, and finally may involve the entire face. Painful movement of the eyes is frequent. Exophthalmos, conjunctival ecchymosis, mydriasis, and retinal haemorrhages occur with varying degrees of frequency. At post-mortem examinations numerous trichinellae have been found in the ocular muscles.

Obstetrics and Gynaecology

284 Post-partum Haemorrhage

W. S. SMITH (*New York State Journ. Med.*, February 1st, 1931, p. 141) reviews the incidence of post-partum haemorrhage in 9,000 consecutive deliveries during the last ten years, classing under this heading all patients who had more than a moderate loss of blood after labour had terminated. There were 67 post-partum cases in his series, and two patients died, corresponding to an incidence of 0.74 per cent., and a mortality of 0.023 per cent. According to the author the incidence of post-partum haemorrhage in a number of large obstetrical departments ranges between 13 and 0.32 per cent., while the mortality percentage is between 0.28 and 0.007; the average incidence is stated as 3.5 per cent., and the average mortality as 0.09 per cent. He attributes his own low figures to the fact that he employed the Dickinson-Pomeroy technique, which includes (1) the administration of pituitrin as soon as the child has been delivered; (2) prompt expression of the placenta at the time of the first uterine contraction after delivery; (3) the immediate lifting of the uterus out of the pelvis by abdominal manipulation; (4) the occasional use of a second dose of pituitrin and the administration of ergot; and (5) employment at times of the lifting vaginal pack, with or without an abdominal binder. Smith believes that there is no need in post-partum haemorrhage to use the intrauterine pack. He insists that unceasing vigilance in the control of small blood losses at the start is the method by which the obstetrician may lessen the incidence of such haemorrhage, and quotes the aphorism, "The only safe uterus is the empty uterus."

285 Toxaemias of Pregnancy

Discussing the toxaemias of pregnancy, J. R. GOODALL (*Can. Med. Assoc. Journ.*, January, 1931, p. 112) believes that the time-honoured division of these conditions into those of the first and second halves of pregnancy respectively is clinically sound. Toxaemia in the first half of pregnancy has often a considerable neurotic factor, and the relative importance of this in comparison with the actual toxic state has to be defined in most cases if treatment is to be effective. The alimentary canal is always involved, and this calls for the taking of light meals every three to four hours in order to secure that the stomach does not remain empty for long intervals. When vomiting persists, and acidosis ensues, intravenous injections of 500 c.cm. of a 10 per cent. solution of glucose in saline are most valuable. If the improvement is only transitory the injection should be repeated, but the quantity here recommended should not be much exceeded. The oral administration of sodium bicarbonate and the bromides is helpful also. Toxaemias of the second half of pregnancy fall into three classes: (1) cases of chronic nephritis complicated by pregnancy; (2) the pre-eclamptic or true toxaemias of pregnancy; and (3) toxaemias of kidneys of low reserve. Goodall discusses in detail the treatment indicated in each class, and emphasizes the importance of withdrawing 300 to 400 c.cm. of blood in eclamptic convulsions, followed by the intravenous injection of glucose in saline solution. In this second class it is very important to recognize the condition early, and to begin treatment before any great damage has been done.

286 Diseases of the Placenta

As the result of examining twelve placentas from patients with pregnancy toxaemia and albuminuria, twelve from syphilitic subjects, and nine from normal patients, M. RIVIÈRE (*Gynécol. et Obstét.*, December, 1930, p. 481) concludes that the morbid histological processes which have been reported as characteristic in the first two groups are shared by them in common, and are found with equal frequency (although diminished intensity) in the normal group. The changes comprise syncytial exuberance, capillary angiomata, vascular obliteration, and necroses of the villi. Rivière concludes that at present the histological diagnosis of an "albuminuric" or syphilitic placenta is impossible. The case is cited of a woman whose placenta was examined after two successive pregnancies. The first was accompanied by toxaemia and much albuminuria, and the placenta showed the microscopical characters which have been attributed to the "albuminuric placenta." The placenta of the second pregnancy, which was normal and not associated with albuminuria, proved to be exactly similar. It appears that the normal senescence of the placenta may give rise to histological changes similar to those seen in it in syphilis and albuminuria.

287 Radium Treatment of Carcinoma of Cervix

H. C. PITTS and G. W. WATERMAN (*Amer. Journ. Obstet. and Gynecol.*, November, 1930, p. 607) report a series of 92 cases of carcinoma of cervix, definitely diagnosed by microscopical examination, and treated at the Rhode Island Hospital from 1921 to 1924. The available radium consisted of three 50 mg. tubes with 0.5 mm. silver filters and 1 mm. brass capsule; two 25 mg. tubes filtered in the same manner; and ten 5 mg. steel needles. The capsules were placed in the cervical canal, usually two 50 mg. tubes in tandem, enclosed in a piece of rubber tubing 4 mm. thick. The remaining radium was placed against the cervix, being held in position by iodoform gauze packing. The steel needles were inserted about the periphery of the growth. An exposure of 3,500 to 5,000 milligram hours was given, divided in two to three doses at two to three weeks' intervals. The records show that at the end of the three-year period there were 23.6 per cent. of the traced patients alive and clinically free from disease. At the end of the five-year period 18.2 per cent. of traced patients were alive and well. The percentage of five-year cures in the fifth decade group is quite markedly higher in spite of a lower operability rate than either the preceding or succeeding decade. The authors plead for a uniform method of classifying cases and of reporting results so as to render possible a true comparison of the figures of different clinics.

288 Radiological Diagnosis of Ectopic Gestation

According to F. SZELLÖ (*Zentralbl. f. Gynäk.*, January 24th, 1931, p. 224) *x*-ray diagnosis of extrauterine pregnancy is often possible in cases in which the foetus is retained towards or beyond term, but the radiological detection of extrauterine foetal parts has not been found feasible before the fifth month of pregnancy. He records two cases in which extrauterine (intraligamentary) pregnancies were demonstrated by *x*-ray examinations during the fourth month; in one instance diagnosis had remained uncertain in spite of exploratory puncture of the pouch of Douglas. A negative radiograph during the first half of pregnancy must not be regarded as excluding ectopic gestation. The author remarks that the detection of foetal bones placed symmetrically in the pelvis does not —as has been stated by others—point necessarily to intrauterine gestation; careful correlation of the radiological findings with those of a bimanual clinical examination is necessary.

289 Rupture of the Uterus during Labour

T. M. HEALY (*Journ. Obstet. and Gynaecol. of the British Empire*, Winter, 1930, p. 827), who records five cases of uterine rupture during labour, believes that total hysterectomy is unnecessary in such emergencies if provision is made for free drainage through the cervical canal and vagina, as well as through the abdominal wall. Incomplete ruptures, and complete ruptures discovered after delivery, can usually be adequately treated through the vagina. When a diagnosis of complete rupture is made before delivery, Healy considers that the best results will be obtained by opening the abdomen at once, without any vaginal investigation or manipulation, and without any regard to the extent to which the child has left the uterus. He found that in his cases the breasts apparently functioned quite normally in the absence of the uterus and ovaries; in one instance there was no secretion of milk, but this was apparently due to the debilitated condition of the patient.

Pathology

290 Non-specificity of the Scarlet Fever Streptococcus

T. TOYODA, J. MORIWAKI, Y. FUTAGI, and S. HOSHIZAKI (*Brit. Journ. Child. Dis.*, October–December, 1930, p. 282) applied the following tests to determine the specificity of the haemolytic streptococcus associated with scarlet fever: (1) carbohydrate fermentation of streptococci isolated from different sources; (2) capability of producing Dick toxin; (3) neutralization of different kinds of streptococcus toxins with scarlet fever convalescent serum; (4) skin test with scarlatinal streptococcus toxin after active immunization with non-scarlatinal streptococci toxins; (5) Schultz–Charlton phenomenon tested with different varieties of the haemolytic streptococcus antitoxin; (6) rate of appearance of scarlatiniform rash after intramuscular injections of different kinds of haemolytic streptococcus toxin; (7) Schultz–Charlton phenomenon produced with different kinds of haemolytic streptococcus antitoxin on each scarlatiniform rash caused by intramuscular injection of different kinds of streptococcus toxin; (8) agglutination tests of different haemolytic streptococci with the serums of scarlet fever patients in the early stages and in convalescence; (9) complement-fixation tests of different haemolytic streptococci with the serums of convalescent scarlet fever patients in early and convalescent stages and the serums of healthy negative Dick reactions; and (10) precipitin reactions of different haemolytic streptococci to the serums of scarlet fever patients. The authors conclude that scarlet fever streptococci cannot be regarded morphologically, biologically, or serologically as possessing a specificity distinguishing them from other haemolytic streptococci.

291 The Plasmodium of Pernicious Malaria

E. MARCHIAFAVA (*Amer. Journ. Hyg.*, January, 1931, p. 1) concludes that the three malarial parasites, the *P. malariae* of quartan, the *P. vivax* of tertian, and the *P. praecox* or *falciparum* of aestivo-autumnal fevers, are distinct and easily distinguishable species. Each has two separate life cycles: the asexual or pyrogenic, in the human body; and the sexual, which begins in man and ends in the mosquito. Pernicious symptoms are connected only with *P. falciparum*, which has clearly differentiated characters. At the peak of the paroxysm the predominating asexual form in the peripheral blood is a plasmodium without pigment, first adherent to and then inside the red cell, exhibiting amoeboid movements; when at rest it is discoid in form, and during activity becomes a ring. This stage is followed by that of a very fine black granular pigmentation, usually peripheral. Another characteristic is its effect on the red cells; these become smaller, shrivelled up and wrinkled, and of a dark yellow, brassy colour. A biological characteristic is the site of sporulation; this occurs usually in the capillaries of the internal organs, not in the peripheral blood. The sexual forms range as regards shape from crescents to almost round varieties. The crescents are characteristic, and give the name to the parasite. Malignant malaria is distinguished by the long duration of the febrile access, the characteristic febrile curve, and the symptoms of the attack. It occurs only in the summer and autumn, and only recent infections or early relapses develop into pernicious malaria. Clinical manifestations of the various forms of this condition are distinguished, including the bilious, pneumonic, and central nervous types.

292 Bacteriology of Yellow Fever

J. E. DINGER, SCHÜFFNER, and SNIJDERS (*Zentralbl. f. Bakt.*, January 20th, 1931, p. 304) have endeavoured to confirm Kuczynski's work on the causation of yellow fever by a diphtheroid bacillus called by him *Bacillus hepatodystrophicans*. It is known that the blood of monkeys suffering from yellow fever is highly infective, and that the virus is present in as small a quantity as a millionth of a cubic centimetre. If the virus is of a bacterial nature, it should be possible to cultivate it *in vitro*. Portions of the liver and heart were removed under aseptic conditions from *rhesus* monkeys that had died of typical yellow fever, and cultures were made on Kuczynski's special medium. From 6 out of 11 monkeys an organism was recovered in pure culture which appeared to be identical with *B. hepatodystrophicans*. Some of the negative cultures were inoculated into fresh tubes of the same medium, and it was found that after three to five subcultures the same organism suddenly appeared. Experiments with uninoculated medium suggested that these diphtheroid bacilli were probably derived either from the air or from the rabbit or guinea-pig liver used in the preparation of the medium. Attempts to infect monkeys with the organisms recovered, as well as with Kuczynski's own original cultures, proved completely negative. It was found, moreover, that the yellow fever virus would not remain virulent for even two days in cultures of the diphtheroid bacilli. The authors conclude that these organisms have nothing to do with the causation of yellow fever.

293 Production of Encephalitis with Vaccinia Virus

A. ECKSTEIN (*Zeit. f. Hyg. u. Immunitäts.*, January 15th, 1931, p. 151) injected vaccine lymph, in doses of 0.00078 to 0.1 c.cm., by the suboccipital route into the spinal fluid of monkeys. After three days the monkeys became unduly quiet, and exhibited a certain stiffness in their movements. These symptoms were succeeded by spastic paralyses affecting the front or hind limbs; ocular paralyses were noticed in two animals. Later the animals adopted the semi-recumbent position, and were no longer able to reach for food, though they were able to swallow it if it was placed in their mouths. Respiration became increasingly difficult, and death occurred between the sixth and fifteenth days. Of the 17 animals inoculated, one showed no symptoms, and two others were killed after six and eight weeks respectively. Histological examination of the brain of the fatal cases showed the presence of a meningo-myelo-encephalitis. Two control monkeys were inoculated intraspinally, one with 3 c.cm. of saline and one with 0.1 c.cm. of heated vaccine lymph; both remained perfectly well. Three monkeys injected into the carotid artery with 0.1 to 0.5 c.cm. of fresh lymph developed no symptoms, though fourteen days later they failed to react to the intracutaneous inoculation of vaccinia virus. Three additional monkeys were injected intraspinally with a mixed culture of the contaminating cocci and bacilli present in vaccine lymph; these monkeys likewise remained well. Though the author draws no definite conclusions about the etiology of post-vaccinal encephalitis in man, he considers that, taken in conjunction with the finding of vaccinia virus in the spinal fluid of three cases (Gildemeister, Eckstein, and H. and K. Herzberg), the production in monkeys of a similar meningo-myelo-encephalitis must be regarded as significant.

294 Anaemia and Diet

C. FUNK and A. LEJWA (*Bruxelles-Médical*, January 18th, 1931, p. 331) have submitted young rats to various experimental diets without producing any persistent anaemia in these animals. They were also unable to confirm the observations of other workers that copper has any erythropoietic action. In all the young rats, under 60 grams in weight, there was a marked anaemia, the red cells being lowered even to 2 million per c.mm.; but this diminution was regarded as physiological, and it disappeared when the period of rapid growth had ceased. Yeast or liver, whether administered by the mouth or injected in the form of extracts, has the tendency to diminish the number of the red cells. Funk and Lejwa consider that diets probably contain two substances—one which diminishes the number of the red cells, and a second which has the contrary action. They have endeavoured to separate these two principles from yeast and from liver, and conclude that yeast contains less regenerating substance or more diminishing substance than liver.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

295 Asthma Intensified by Liver Therapy

E. MATZGER (*Journ. Amer. Med. Assoc.*, January 10th, 1931, p. 110) reports a case in which the administration of liver extract intensified attacks of bronchial asthma, and suggests that this form of treatment may give rise also to other allergic manifestations such as gastro-intestinal disturbances and skin eruptions. The author's patient, aged 36, had suffered for several years from bronchial asthma dating back to bronchitis in childhood. He was treated with horse serum without reaction. A diagnosis of primary anaemia was made subsequently, the blood count being red cells 1,850,000, and leucocytes 1,900 per c.mm.; the colour index was 1.3. The patient then commenced a diet of raw liver, to which the anaemia responded after two weeks. The bronchial asthma, however, became continuous at the end of the first week of treatment and persisted until the liver was discontinued; a satisfactory blood picture was, nevertheless, maintained without further treatment. A year later the bronchial asthma recurred, but yielded to some extent to immunization by pollen and house dust. Raw liver was given a second trial, but was immediately followed by exacerbation of the asthmatic symptoms, which ceased as soon as the treatment was stopped. Desiccated hog stomach maintained a healthy blood picture without causing asthma. Cure of the asthma was eventually obtained by full immunization to pollen and house dust.

296 Etiology of Addison's Disease

As the result of fifteen years of physiological and clinical study of suprarenal insufficiency J. M. ROGOFF (*Canadian Med. Assoc. Journ.*, January, 1931, p. 43) has come to the conclusion that Addison's disease is not so much a manifestation of absence or failure of function of the medullary adrenaline secretion as the absence or lack of function of the cortical part of the gland. Experimental evidence obtained from dogs indicated that the loss of both glands caused symptoms which were entirely due to the loss of the cortex; certain cortical extracts were eventually obtained which were effective in prolonging life in such dogs, despite the excision of their suprarenals. Rogoff ascribes great importance in clinical diagnosis to the aversion displayed as regards fatty foods by patients suffering from Addison's disease, and also to a dull ache or pain in the back in the costo-lumbar angle on the side where at the subsequent necropsy extensive suppuration or caseous degeneration is demonstrable. He found that whereas the administration of adrenaline in such patients proved ineffective, an extract of the cortical portion of the gland was markedly beneficial, particularly when associated with intravenous injections of physiological saline solution, or Ringer's solution, to which is usually added 2 to 6 per cent. of dextrose. Addison's disease is, he adds, much more rapidly fatal in blonde patients than in brunettes.

297 Atypical Haemophilia

J. FLESCH (*Med. Klinik*, January 23rd, 1931, p. 127) discusses atypical forms of haemophilia, and reports the case of a boy, aged 5 years, who had severe colic relieved after the passage of stools mixed with blood, and suggesting appendicitis or volvulus. Three days later a tense sausage-shaped mass, associated with the typical blood count, indicated the probability of intussusception. Flesch, having discovered a familial history, diagnosed subserous haematoma, producing pressure symptoms. The melaena ceased, the swelling disappeared, and the boy recovered. At the age of 7 this boy had severe dyspnoea, with retrosternal pain and other signs of mediastino-pericarditis, without fever; the pain subsided in a few days, and he recovered, evidently from mediastinal haemorrhage: Two years later circumcision was performed, and haemorrhage from the stitches was arrested by injection of horse serum. After four years of good health an attack of vomiting caused severe dyspnoea with stridor, and a laryngeal examination revealed extensive submucous haemorrhage with oedema of the glottis. Subsequently painless haematuria with progressive anaemia ensued. Haemorrhage was unilateral and intermittent, coming from the renal pelvis or calyces, as was shown by attacks of renal colic. As regards diagnosis, the author states that non-traumatic haemophilic haemorrhage ceases spontaneously sooner or later; examination of the urine and the urobilinogen content confirms the diagnosis. He believes that most haemophilic arthralgias are of haemorrhagic origin; they progress towards arthritis and ultimate ankylosis, giving characteristic *x*-ray appearances. After the crisis the blood-coagulation time is prolonged or normal. The blood platelet count is almost always normal. Treatment is disappointing.

298 Intestinal Perforation in Paratyphoid B Fever

R. DAMADE and F. PAPIN (*Gaz. Hebd. Sci. Méd. de Bordeaux*, January 18th, 1931, p. 35), who records an illustrative case, state that while intestinal perforation in typhoid fever is well known, only a few examples of this complication have been recorded in paratyphoid fever. The first two cases were published by Chevrier and Grenier respectively in 1913, and subsequently cases were reported by Rathery in 1916, Cornil in 1924, and Pop in 1929. In his Bordeaux thesis of 1930 Latouche collected 14 cases of perforative peritonitis and 3 cases of non-perforative peritonitis in the course of paratyphoid A, B, and C. The prognosis of perforation in paratyphoid seems to be less unfavourable than in typhoid fever, since of 9 operation cases recorded by Cornil, 5 patients recovered, and of Latouche's patients who had been operated on, 3 recovered, while the 6 who were not so treated died. The present authors' case was that of a girl, aged 17, who developed intestinal perforation in the second week of paratyphoid B fever; until then it had been regarded as influenza. An operation was performed, and her subsequent recovery was uneventful.

Surgery

299 Recklinghausen's Disease of Bone

M. P. MULLER (*Bull. et Mém. Soc. Chir. de Paris*, December 19th, 1930, p. 785) reports the case of a woman, aged 40, who had fallen and was admitted to hospital with a fracture of the right femur. Traction was continued for two months, but at the end of this time there were no signs of bony union. A radiogram showed decalcification of the bone, with the presence of a bone cyst at the site of fracture. A bone graft, consisting of a portion of rib fixing the bone ends together, was inserted, but after a further two months bony union had still not taken place. Histological examination of the fragments removed at the time of operation showed disappearance of the osseous lamellae and a medullary fibroplastic metaplasia with multinucleated giant cells. In view of the chronic character of the bony lesions, a diagnosis of Recklinghausen's disease was made. A few months later the left femur and right arm were also fractured, and *x*-ray examinations in each case showed decalcification of these bones and also of the rest of the skeleton. There had been a total of seven fractures during a period of two years. In most cases this disease begins in infancy, but is not necessarily associated with rickets. In the case reported the Wassermann reaction was positive, but antispecific treatment had no effect on the disease, and syphilis did not appear to be the causative factor.

300 Joint Disease from Frost-bite

A. v. TEMPSKY (*Zentralbl. f. Chir.*, February 7th, 1931, p. 339), who records an illustrative case, states that while joint disease, and especially osteochondritis due to mechanical trauma, is well known, very little has been written about the relation of thermal factors to the development of joint affections. His patient was a lad, aged 20, who contracted extensive frost-bites on both hands while ski-ing. Bullae developed on the extensor aspects of the fingers and backs of the hands, which became very cyanotic and swollen. Gangrene occurred in the ring and little fingers of the right hand and little left finger, necessitating amputation of the last two phalanges of each finger. An *x*-ray examination showed severe destructive lesions of the joint between the proximal and second phalanges of the right little finger, while in the joint between the second and terminal phalanges of the right index and middle fingers the normal structure of the joint was completely destroyed, and less clearly marked lesions were found in the interphalangeal joints of the left ring finger. It is noteworthy that the affected joints appeared quite normal in the skiagrams taken immediately after the hands had become frozen, and the changes were first detected a year later. A similar case with late development of joint lesions has been reported by Löhr.

301 Duodenal Fistula

J. MURARD (*Bull. et Mém. Soc. Nat. de Chir.*, December 27th, 1930, p. 1458) divides duodenal fistulae into two groups—namely, spontaneous fistulae following a natural opening occurring at the site of a periduodenitis, and those which occur after operation for a perforated ulcer. The latter may be due either to failure in suturing or to the presence of a drainage tube. Different forms of drainage are discussed; a gauze drain is advocated as being less likely to cause a fistula. Murard records the case of a man, aged 68, in which gauze drainage was used; although the patient died from softening of the brain, there was sufficient time to see that, following the removal of the gauze drain on the fourth day, the wound had healed without fistula. In another case it was impossible to close the perforation, which was plugged; although a duodenal fistula developed, it healed spontaneously at the end of three weeks. Indications for using a gauze drain are the impossibility of closing the perforation or of evacuating the peritoneal exudate, and infection at the seat of the perforation. An established fistula may be treated indirectly by a gastro-enterostomy, which may be completed or not by a cholecysto-gastrostomy, or directly by suturing the edges of the opening, or by means of a partial duodenectomy with the re-establishment of the continuity of the duodenum. Indirect treatment is advocated in cases of posterior fistula, and the direct method for anterior fistula. In the majority of cases duodenal fistulae will close spontaneously in about three weeks, but in certain cases this does not happen, possibly owing to the passage of bile through the fistula, which hinders healing.

302 The Surgical Treatment of Angina Pectoris

D. DANIELOPOLU (*Presse Méd.*, December 27th, 1930, p. 1789) discusses the various operations that have been devised for the relief of angina pectoris. He refers to the operations involving extirpation of the stellate ganglion, and shows that they are apt to be followed by severe congestive heart failure. This he believes to be due to interruption of those sympathetic fibres which augment the force and rate of the heart, while increasing the blood pressure and dilating the coronary arteries. The author quotes animal experiments supporting this view, and remarks that such groups of patients in whom this operation has been performed without serious mortality have not been cardiac patients. The introduction of surgical treatment into current cardiological practice is thought to be desirable, but only if it were indispensable would extirpation of the stellate ganglion be justifiable, and only then in a patient in danger of death from frequent severe anginal attacks. The author claims that angina may be relieved by operation without excision of the stellate ganglion; he advises cervical sympathectomy combined with division of those branches of the vagus supplying the thorax and the rami communicantes uniting the inferior cervical and first thoracic ganglion to the three last cervical pairs; section of the first dorsal and the vertebral nerves is also performed. Among 28 patients operated upon in this way by various workers no fatality has occurred. Moreover, in the great majority there has been complete or almost complete relief from attacks for periods varying from one to five years. Sometimes operations on both right and left sides are necessary. In view of these results, operations involving extirpation of the stellate ganglion are considered not only dangerous, but also unnecessary.

Therapeutics

303 Treatment of Carbohydrate Dyspepsia

A. F. HURST and F. A. KNOTT (*Quart. Journ. of Med.*, January, 1931, p. 171) define intestinal carbohydrate dyspepsia as due to the defective fermentation of starch with consequent gas production and the formation of acetic, butyric, and other organic acids in the caecum and ascending colon. In the treatment of severe cases of this condition the authors recommend the exclusion of rice and of vegetables of every kind, but in milder cases green vegetables can be permitted in soups, and only root vegetables, cauliflower, and rice need be forbidden. In most cases as recovery proceeds the restrictions can be gradually lessened until, finally, potatoes alone are prohibited, a restriction which is often necessary for the remainder of the patient's life. With each meal an active preparation of an amylolytic ferment is administered, and it is found that with this aid the diet need not be so severely limited. Vegetable diastase is more resistant to the gastric acid than the amylopsin of pancreatic extracts, and is therefore preferable. Powdered charcoal was found to be quite unnecessary if a sufficiently strict diet was ordered. In severe cases with much diarrhoea the administration of a teaspoonful of chalk three times a day hastened recovery, the irritating organic acids being neutralized thus as fast as they developed. The authors consider vaccine treatment and colonic lavage useless. In view of the occurrence of this condition in many neurasthenic and psychasthenic patients, the importance of diagnosing it and treating it suitably by dieting is particularly notable by reason of the insomnia with which it is often associated, and which fails to respond to such drugs as medinal and luminal.

304 Digitalis in Pneumonia

J. WYCKOFF, E. F. DUBOIS, and I. O. WOODRUFF (*Journ. Amer. Med. Assoc.*, October 25th, 1930, p. 1243) report a series of pneumonia cases; simultaneous observations under identical conditions were made on similarly selected groups of patients treated with digitalis, and patients from whom digitalis was withheld. Class A were given neither serum nor digitalis; Class B had serum only; Class C digitalis only; and to Class D patients was administered both serum and digitalis. Patients were received into the "pneumonia series" according to the date and hour of admission, and alternate patients were treated with serum. This system of classification operated in each ward independently of other wards, so that factors of general care and nursing might be the same for each class of treatment. No evidence was obtained that routine digitalis therapy in lobar pneumonia resulted in a lowered mortality. About 95 per cent. of the patients had sinus rhythm throughout, but the only consistent signs of digitalis action were electrocardiographic changes and mild toxic effects. Digitalis toxicity was not a sufficient guide to prevent increase in mortality when the drug was used. The amount of the drug employed was found a better guide. When the digitalis was given in dosage too small to show any effect it caused no changes in mortality. When the doses were

comparable with the amount usually needed in the treatment of heart failure it affected the P-R interval and T-wave of the electrocardiogram, but caused little change in mortality. Auricular fibrillation and auricular flutter occurred rarely—in less than 5 per cent. of all cases. The authors think that digitalis might perhaps have been life-saving in an occasional patient in whom there was fibrillation or flutter, but, on the other hand, such patients frequently recovered without digitalis. They conclude that the routine giving of digitalis to patients with lobar pneumonia is dangerous.

305 Iodine Therapy in Exophthalmic Goitre

A. S. JACKSON and G. H. EWELL (*Amer. Journ. of Surg.*, December, 1930, p. 475) call attention to the danger of the prolonged administration of Lugol's solution in exophthalmic goitre. After a period of improvement when the patient gains weight, the heart and tremors quiet down, and the eye and mental symptoms diminish, there follows a stage in which a condition of "iodine fastness" develops, there being a tolerance to the drug characterized by elevation again of the metabolic rate, and the appearance of signs of myocardial damage with auricular fibrillation. An operation in such circumstances is fraught with grave risk, and the conclusion is drawn that the operation should not be delayed, but be performed in one or two stages as soon as the iodine medication has rendered it possible. The authors discuss the conflicting theories held as to the way in which the administration of iodine affects the enlarged thyroid gland; they believe that mechanical compression of the cells, with temporary inhibition of the action of nearly all areas, is an explanation which is supported by the pathological evidence. They emphasize the point that iodine therapy must not be considered as a curative procedure in goitre, where it has only a temporary palliative effect.

306 According to various authors, the clinical remission in cases of hyperthyroidism treated by iodine is accompanied by involutionary changes in the gland, and GEBELE (*Münch. med. Woch.*, February 6th, 1931, p. 225) reports a special study of the condition of the vessels in a number of thyroid glands removed at operation. Macroscopically, the glands from cases prepared by iodine therapy were found to be paler and firmer than the others; histologically, the non-treated glands show pronounced dilatation of the vessels—especially of the venules and capillaries of the interlobular septa—which is much less evident in the iodine cases. This lack of vascular engorgement appeared to bear a relation to the amount of iodine given. Gebele believes that iodine causes a rapid accumulation of colloid in the acini of the gland; this exerts pressure on the thin-walled veins and capillaries, thus probably hindering the absorption of thyroxine. If the administration of iodine is long continued the distension passes off, and toxic absorption recommences. Hence, as is well known, the iodine effect is usually a temporary one.

Radiology

307 Radiology in Urinary Diseases

J. MOMBAERTS (*Le Scalpel*, January 24th, 1931, p. 114) discusses the advantages and disadvantages of uroselectan in the diagnosis of renal disease. The drug contains 40 per cent. of organically fixed iodine; after its intravenous injection 96 per cent. is excreted in the urine in eight hours. It is non-toxic, and opaque to *x* rays even in high dilution. A considerable objection to its use is the variable time of excretion, necessitating the employment of a large number of *x*-ray plates. The procedure is indicated: (1) when ureteral catheterization is impossible, or as an alternative to it after cystotomy, or in place of exploratory lumbotomy; (2) as a last resource in doubtful cases; (3) when low pyelography is dangerous, as in cases of known bilateral kidney disease, or horseshoe kidney; and (4) in asymptomatic cases of doubtful etiology, when the use of uroselectan may draw attention to the renal tract.

308 The Results of X-Ray Treatment in Graves's Disease

P. HESS and H. SCHLECHT (*Münch. med. Woch.*, January 9th, 1931, p. 55) report a series of 29 cases of exophthalmic goitre and hyperthyroidism which were treated by *x* rays: 93 per cent. were cured or definitely improved. The cases varied in severity, but in nearly all the basal metabolism was raised 20 per cent. or more. The method generally adopted by these workers was to submit the patient to three series of exposures at an interval of four to six weeks; each series consisted of three exposures on successive days, and at each the right and left sides of the neck and the thymus were irradiated. The course of the treatment was, however, in every case controlled by the reduction produced in the basal metabolism, and in no case was the patient exposed to further *x* rays when this approached normal. The ultimate response to the treatment was often delayed for a long time, the average in this series being sixteen months. The authors point out that this slow response has been disregarded in former comparisons of the results of *x*-ray and surgical treatment in hyperthyroidism and exophthalmic goitre. If the patient can spare sufficient time, they consider that the results of *x*-ray therapy compare very favourably with those of surgery, while the mortality of the former is *nil*.

309 Treatment of Pituitary Tumours

Of 23 cases of pituitary tumours dealt with at the Brünner Ophthalmic Clinic, V. MAZAL (*Bratislavské Lekárske Listy*, December, 1930, p. 197) states that 18 were subjected to *x*-ray treatment, 2 were treated surgically, and 3 had no treatment at all. Of the eighteen treated radiologically twelve improved, two remained unchanged, two became worse after an initial improvement, and two others became worse immediately following the treatment. Of the two operation cases, one improved. The author concludes that treatment must be individual. Undoubtedly most cases improve under *x* rays properly applied, but certain cystic growths and very rapidly growing tumours giving rise to acute increase of intracranial pressure and rapid deterioration of vision should be handed over to the surgeon.

Obstetrics and Gynaecology

310 Syphilis of the Cervix

In a review of syphilis of the cervix J. J. PUENTE (*Bruxelles-Médical*, February 6th, 1931, p. 408) reports 29 cases of primary cervical chancre, and 28 others which were diagnosed as secondary syphilitic lesions. All the cases were examined and treated at the Rivadavia Hospital (Buenos Ayres) between 1921 and 1930. Among genital chancres observed during this period, 16 per cent. were chancres of cervix, a notable increase as compared with the previous decade. The situation of the chancre in 18 out of 28 cases was in the neighbourhood of the external os. In the remainder it appeared on one or both lips of the os itself. Clinically, the appearance was usually papular, but sometimes ulcerated or hypertrophied. The diagnosis of syphilitic chancre of the cervix rested on the presence of a raised ham-coloured papule, or an ulcer with an infiltrated base situated on or near the os. The exudate was yellow, with minute haemorrhagic points. The surface was finely granular, but after friction would become smooth and shining from the presence of an abundant serous secretion. At the periphery of the papule tiny telangiectases were seen. The most important and constant characteristic was the firm, hard consistence. The specific spirochaetes were found relatively easily in the eccentric lesions, provided that they were carefully cleansed, but sometimes several investigations were necessary to distinguish *S. pallida* from other spirochaetes. Pathological sections showed much pluriglandular infiltration. The cylindrical epithelium of the mucous membrane was invariably unbroken, either in the canal or in the glands opening into it.

311 Menstruation and Epilepsy

According to A. SOUQUES (*Presse Méd.*, February 7th, 1931, p. 185) menstruation and epilepsy are interrelated, but only under two conditions: when the crises appear for the first time between puberty and the menopause and when they recur during a variable length of time in synchronism with the menstrual periods, or the times at which menstruation should occur. In the first category menstruation and the crises coexist; in the second the catamenia are absent, and are replaced by epileptic seizures. Many cases reported in the literature and cited by Souques indicate that there is an actual, and not fortuitous, relationship between the two conditions, and that menstruation (as well as other states, such as pregnancy and the menopause) exerts both a favourable and an unfavourable influence on the epilepsy. Further proof of this relationship is afforded by the benefits resulting from the administration of the follicular hormone. The pathogenesis of menstrual epilepsy is unknown, but two theories about its causation have been advanced: that it is a reflex phenomenon, or is due to a humoral disturbance. Souques reviews the physiology of menstruation and discusses these theories. He suggests as the most probable cause the existence of a previous histological or biological alteration of the nervous centres together with a humoral disturbance—that is, an intoxication which, when a certain degree of concentration is reached, excites the nerve cells, either directly or indirectly through the vago-sympathetic system, and thus the epileptic crisis is caused.

312 Treatment of Placenta Praevia

C. H. PECKHAM (*Amer. Journ. Obstet. and Gynecol.*, January, 1931, p. 39) deprecates the indiscriminate routine employment of Caesarean section in placenta praevia; although the chances of the child are increased by this procedure, there would be little or no reduction in the maternal mortality rate. Many of the patients who succumb are too ill on admission to hospital or are bleeding too severely to warrant the added risk of laparotomy. Others, in consequence of previous infection by unskilful examinations or the introduction of vaginal packs, would be considerably endangered by Caesarean section, unless followed by hysterectomy. The author considers, however, that section is indicated in cases of central placenta praevia when the patient is admitted to hospital before labour has begun, or when it is still in a quite early stage, the child being alive. In the marginal type of implantation the hydrostatic bag is thought by Peckham to offer the best results. His conclusions are based on the study of 146 cases of placenta praevia occurring in a series of pregnancies numbering 36,198. He believes that the still high maternal mortality figure (8.64 per cent.) could be reduced by more prompt hospitalization and the more frequent employment of transfusion. The incidence of premature labour in this condition is high, but the maternal mortality in such cases is low, increasing more than three times when delivery occurs at or near term.

Pathology

313 The Relation of Vitamin D to Irradiated Ergosterol

A. D. HOLMES (*New England Journ. of Med.*, January 29th, 1931, p. 211) suggests that vitamin D and irradiated ergosterol may be one and the same substance. The data upon which this conclusion is based were obtained from experiments with laboratory animals, from clinical studies, and from laboratory studies of the chemical nature of irradiated ergosterol. These data seem to indicate that, for the treatment of rickets, either vitamin D, as it occurs in cod-liver oil, possesses properties not present in irradiated ergosterol, or that the vitamin A or some other substance in cod-liver oil enhances the antirachitic vitamin in the oil, so that it is more effective in the treatment of rickets than equivalent rat units of irradiated ergosterol. The early studies of the chemistry of irradiated ergosterol indicated that this material was quite similar chemically to vitamin D; both were soluble in fat or oil, both were destroyed by oxidation, both lost their antirachitic value when subjected to prolonged irradiation, and neither was destroyed by saponification. Recent work (Bills) has shown that there are many isoergosterols and that certain of these are convertible into each other. A comparison of activated ergosterol and cod-liver oil involves a consideration of isomerism, and it would appear that their antirachitic action is not identical, cod-liver oil appearing to be greatly superior to irradiated ergosterol.

314 Undulant Fever Investigations in Germany

F. WEIGMANN (*Deut. med. Woch.*, February 13th, 1931, p. 284), working at Kiel, examined 3,535 specimens of serum between the end of January, 1928, and the end of August, 1930. Of these, 119 agglutinated *Br. abortus* to a titre varying from 1 in 50 to 1 in 20,000, the commonest titre being 1 in 1,000 to 1 in 5,000. Blood cultures were put up in 72 cases, but in only five instances was the causative organism recovered, even though an atmosphere of 10 per cent. CO_2 was maintained during incubation. Details were available concerning 91 of the reacting patients. In the majority of these there was a history of undulant, remittent, or intermittent fever, with a slow pulse, subjective well-being even with a high temperature, leucopenia with a relative lymphocytosis, and frequently a complete absence of physical signs, though splenic swelling, epididymo-orchitis, endocarditis, bronchitis, diarrhoea, or constipation, and joint pains and swellings were sometimes met with. In 4 patients giving a positive serum reaction the fever appeared to be due either to typhoid fever or to croupous pneumonia; in two other patients a mixed infection was present. Five persons were detected on farms who gave a positive serum reaction without any history of illness. The author considers that these persons were suffering from a latent infection. Such a condition he regards as being fairly common; he points out that quite frequently the onset of undulant fever follows some other illness or may apparently even be determined by a fracture, suggesting that a fall in the resistance of the body may allow a latent infection to become manifest. In 49 of the cases milk was probably the source of infection, in 7 cases contact with infected cattle, in 20 cases both sources of infection were available, and in 15 cases no definite evidence was forthcoming. As regards sex, there were 85 men and 34 women. The youngest patient was 11 years old and the oldest 75 years, the commonest age being 20 to 40 years. The author thinks that the disease would be found in children if only a systematic examination was made of the blood serum in all doubtful cases of febrile illness.

315 Pathogenic Factors in essential Pernicious Anaemia

G. FONTÈS and L. THIVOLLE (*C. R. Soc. de Biologie*, January 30th, 1931, p. 219) have previously reported that a deficiency in the two amino-acids tryptophane and histidine causes grave troubles, among which is a change in the blood picture. They believe that pernicious anaemia may be caused by a deficiency of this kind, and advance the following arguments in support of this opinion. Though achlorhydria is usually considered the cardinal symptom of this disease, the pancreatic and intestinal juices have normally a diastasic activity, and functional failure of all the digestive diastases may occur in pernicious anaemia. From the imperfectly peptonized albumins produced in cases of achlorhydria the digestive juices with difficulty produce the amino-acids which normally bring about the nitrogenous replenishment of the organism. Moreover, tryptophane and histidine are highly sensitive to intestinal bacterial action; these organisms are abundant in pernicious anaemia. Such facts, together with the loss in weight, point to a total or partial chronic deficiency in these substances. The success following hepatotherapy in this disease is ascribed by the present authors to the fact that the liver contains the amino-acids formed during digestion. Finally, daily subcutaneous injections of tryptophane (100 mg.) and histidine (200 mg.) have produced marked benefits in pernicious and splenomegalic anaemias, and in leukaemia. The authors suggest that this may prove an efficient treatment in cachectic diseases.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

316 The Source of Infection in Tuberculosis

S. LUNDE (*Tidsskrift f. d. Norske Laegefor.*, February 1st, 1931, p. 168) draws attention to the rarity of tuberculosis in cattle in Norway. In the period 1921–27, although 163,349 carcasses were examined in Oslo, Bergen, Trondhjem, and Stavanger, signs of tuberculosis were found only in 258. In 247 of these cases the diseased carcasses were examined in Oslo; in the other three towns there were thus altogether only 11 cases of demonstrable tuberculosis. In the overwhelming majority of these 258 cases the localization and character of the tuberculous lesions showed that they were not likely to be dangerous sources of infection; disease of the udder is rare in Norway. Lunde shows how much more important infection from human sources is by reference to tuberculin tests (Mantoux) with up to 10 mg. of tuberculin. He has examined all the 1,336 children and young persons under the age of 17 in this district, and has obtained a positive reaction in only 130—that is, in 9.73 per cent. In 112 of these cases the source of infection was traced to the positive reactor's home, in 10 to a home in the neighbourhood, and in 2 to a tuberculous school-teacher. In the remaining 6 cases the children had come from another district where the source of infection was unknown. In Lunde's own district, essentially agricultural, there was not a single positive reactor whose infection could be traced to a bovine source. Nearly all the infection was traceable to cases of pulmonary tuberculosis, and Lunde concludes that the most effective means of combating tuberculosis in childhood would be a consistent, deliberate system for the care of human beings suffering from open pulmonary tuberculosis.

317 Prognostic Significance of Precordial Pain

L. LEVIN (*Med. Journ. and Record*, February 4th, 1931, p. 132) has made a survey of a number of patients whose chief complaint was precordial pain. Of 534 private patients who applied for examination and treatment of an actual or fancied heart condition, 68 per cent. were males, as were 75 per cent. of the patients with angina pectoris and coronary occlusion. In this series of cases the incidence of precordial pain was 30.3 per cent. Organic heart pain, particularly that due to coronary occlusion, occurred much earlier and in greater proportions than ordinarily supposed. Dyspnoea was of no value in determining in a given case whether or not the pain had an organic basis. Treatment with xanthine derivatives benefited 63 per cent. of the patients with angina pectoris, 46 per cent. of those with coronary occlusion, and 80 per cent. of those with non-paroxysmal precordial pain of organic origin other than coronary occlusion. At the end of three years' observation 79.3 per cent. of the patients with angina and 38.8 per cent. of those with coronary occlusion were alive. Of these, 60.3 per cent. of the former and 33.3 per cent. of the latter were in good or improved health. Excluding those lost to observation, all of the patients with non-paroxysmal organic pain other than coronary occlusion, and 83.4 per cent. of those with non-organic precordial pain, were in good or improved health.

318 Bulbar Paralysis after Teeth Extraction

W. BAILEY (*Journ. Nerv. and Ment. Dis.*, February, 1931, p. 180) records a case of acute bulbar paralysis, the onset of which directly followed the extraction of teeth. The patient, a woman aged 66, had all her teeth (19) extracted in three sittings. On the day following the last extraction the patient had difficulty in speaking and moving the jaws, and two days later became speechless and developed dysphagia. She complained of severe pain on both sides of the face, especially on the right, and of severe headaches. This appears to be the only case of such a nature to be reported, but facial paralysis following dental extraction has often been noted. Numerous suggestions, here recorded have been made as to the etiology of this facial paralysis. By experiments on dogs Orr and Rows have shown that the lymph stream in nerves is an ascending one, and they believe that toxins could be carried to the cord by this path. Considering the facial pain in the case described here the fifth nerve was apparently irritated on both sides. In view of the large area exposed by the multiple extractions, Bailey suggests that some of the toxins, which were carried along the lymphatics of the fifth and seventh nerves, caused the ensuing bulbar paralysis. In amyotrophic lateral sclerosis and progressive bulbar paralysis the symptoms are predominantly in the motor system, and many investigators think that these diseases may be of microbic origin.

319 Influenzal Polyneuritis

H. OISEAU (*Thèse de Paris*, 1930, No. 483), who records three illustrative cases, states that polyneuritis may develop in convalescence from influenza at periods ranging from 10 days, 3 weeks, 1 month, to 2 months from the onset of the attack. The polyneuritis is principally motor. All four limbs may be affected, and sometimes the disease may assume the course of Landry's paralysis. The muscles of the trunk and neck are very rarely affected. Facial paralysis is fairly frequent, as in 10 cases recorded by Diener 5 showed double Bell's palsy. Several cases of ocular palsy have been recorded, the oculomotor nerve being most commonly affected, while paralysis of accommodation is not frequent. Gradenigo has described a case of post-influenzal auditory neuritis. Palatal and pharyngeal palsies are rare. The characteristic features of influenzal polyneuritis are their predilection for the extremities and especially for the extensor muscles, the frequency of electrical changes, and their irregular course. Sensory, trophic, and vasomotor symptoms are ill-marked. The sphincters are unaffected in most cases. In some cases the cerebro-spinal fluid shows changes similar to those in epidemic encephalitis.

Surgery

320 Fractures at the Upper End of the Radius

J. A. KEY (*Journ. Amer. Med. Assoc.*, January 10th, 1931, p. 101) thinks that, from the standpoint of treatment, fractures of the upper end of the radius fall into three groups—namely, (1) those which should be treated conservatively; (2) those requiring an open operation; and (3) those which should be dealt with on expectant lines, an operation being performed later if necessary. Fractures which should be treated conservatively are fissure fractures of the radial head; chip or chisel fractures of the head in which the detached fragment comprises less than one-third of the circumference of the head, is not displaced, and does not lie against the ulna; and fractures of the neck in which there is very slight displacement of the upper fragment. All that is necessary in these cases is immobilization of the elbow and forearm in a position of moderately acute flexion for two to four weeks. An open operation is required for comminuted fractures of the head of the radius; chip or chisel fractures in which a fragment larger than one-third of the circumference of the head is detached and displaced; and fractures of the neck when the head is displaced downwards, or so tilted as to be unable to rotate on the ulna. In adult patients the head of the radius should be removed, but Key mentions that he has recently replaced it in two cases in children, both of whom have regained normal power and almost complete normal

motility in all directions. Conservative treatment is advised for cases with chip fractures, or fractures of the neck with but slight displacement; chip fractures with considerable displacement of the detached fragment, which may lie loosely in the joint; and fractures of the neck with complete and extensive displacement of the head, which usually lies embedded in the tissues beneath the flexor muscles of the forearm, and can no longer block motion at the elbow. In such cases the final decision regarding the necessity for an operation should be made about six or eight weeks after the injury, and not be put off until traumatic arthritis has ensued.

321 Extravasation from the Ureter

J. F. GEISINGER (*Annals of Surgery*, February, 1931, p. 544) remarks that extravasation from the ureter is an unusual lesion, of grave significance in the absence of trauma; he reports three cases in which the causative factor was apparently necrosis resulting from the impaction of a calculus within the ureter. In such cases the clinical picture will depend upon the amount of extravasation, the virulence of the organisms associated with the lesion, and the tissue reactions of the patient. Although the condition as a rule is imperatively surgical in nature, one of Geisinger's patients recovered without an operation. Catheterization and cystoscopic investigations apparently afforded an outlet for the accumulation on the affected side, thus relieving the patient of sepsis. The author adds that when a patient who is obviously septic presents himself with a history of renal colic, and a physical examination discloses muscular rigidity and marked tenderness in the renal area, posteriorly and anteriorly, or a palpable mass, ureteral extravasation should be borne in mind. Even a radiological investigation may not be conclusive, since the shadow may be wrongly attributed to acute diffuse renal infection, or to ureteral block with acute retention in the pelvis.

322 Pseudomyxoma Peritonei

F. J. IRSIGLER (*Zentralbl. f. Chir.*, February 14th, 1931, p. 408), who records an illustrative case, states that the clinical picture of this condition, which was regarded by Virchow as due to chronic peritonitis with myxomatous degeneration of the peritoneal stroma, was first described by the gynaecologist Werth in 1884. It was initially known only as a sequel of the discharge into the peritoneal cavity of mucus-secreting epithelial cells after rupture of an ovarian cyst, but in 1901 E. Fraenkel described a second form connected with the vermiform appendix, the lumen of which has become obliterated as the result of cicatrization with the formation of a mucocele. Irsigler's patient was a man, aged 20, admitted to hospital with symptoms of acute appendicitis. Laparotomy, which was performed 24 hours after the onset, showed considerable dilatation of the distal end of the appendix and stenosis of the caecal end. Appendicectomy was performed, and recovery was uneventful. F. SCHEWKET (ibid., p. 413) records a similar case in a man, aged 22, admitted to hospital with the diagnosis of chronic appendicitis. On laparotomy the distal end of the appendix showed a bifurcation, one branch of which was empty and presented the usual structure of the appendix, while the other was filled with colloid material. Appendicectomy was performed, and the patient was discharged well in a fortnight.

323 Thyroidectomy immediately before Parturition

R. FONTAINE and R. BAUER (*Bull. et Mém. Soc. Nat. de Chir.*, January 24th, 1931, p. 20) report an unusual case of a large goitre for which a thyroidectomy was performed within a few hours of parturition. The patient, who was the mother of four children, was admitted to hospital with a huge colloid and cystic goitre which was causing severe pressure symptoms. The goitre had been present for several years and had increased in size with each pregnancy, and when seen the patient was suffering from intense dyspnoea, her face and limbs being cyanosed. Foetal heart sounds could be heard, but it appeared necessary to relieve the asphyxiation of the mother if the child's life was to be saved. The operation was conducted under local anaesthesia, novocain being used with continuous inhalation of oxygen. Thyroidectomy was performed ; the goitre, which was found to be multi-nodular and parenchymatous, weighed 600 grams. The respiratory distress was immediately relieved, and six hours after the operation labour pains began. Delivery was expedited by the use of forceps, and two hours later a healthy child was born. Convalescence was normal, except for some irregularity of the heart which necessitated rest. The patient was finally discharged from hospital at the end of six weeks in excellent health.

Therapeutics

324 Treatment of Syphilis

V. G. VECKI (*Med. Journ. and Record*, February 4th, 1931, p. 114) maintains that in the treatment of syphilis there can be no fixed unalterable routine and no stated number of injections; each patient must be studied and treated as an individual case. He regrets that Vernes's test is not more widely employed, because it affords a quantitative as well as a qualitative diagnosis, and enables the degree of infection to be estimated periodically. Using it as a control, patients can be treated until such time as there is some demonstrable certainty that a cure has been obtained. The author uses bismuth in treating all cases of syphilis, and commends the association with it of iodine, given either by the mouth or intravenously. He is satisfied that iodine has a softening influence upon syphilitic foci and a special affinity for diseased tissues which promotes cure. Whenever a case of syphilis is unusually stubborn and resistant to treatment, it is advisable to try a general tonic or an organotherapeutic preparation, since there may be present some active cause apart from the spirochaetal infection. Frequent small doses of antisyphilitic drugs accomplish more than large ones administered at irregular intervals, but before any form of treatment is begun the condition of the patient's kidneys must always be ascertained. Tabetics need special care and precautionary measures, being hypersensitive to physical and chemical irritants, which may provoke angioneurotic attacks. The skin must also be watched, and the occurrence of even slight eruptions be dealt with appropriately. Despite the improvements achieved latterly in antisyphilitic medication, Vecki insists that a syphilitic patient must still be watched and treated from time to time for the greater part of his subsequent life.

325 Treatment of Idiopathic Arterial Hypertension

A. DUMAS (*Presse Méd.*, January 28th, 1931, p. 129) insists that arterial hypertension should be regarded as a disease *sui generis* and not merely as a symptom. The conception of it as a secondary result of renal sclerosis was, he thinks, often due in the past to a misconception of the true sequence of events. Azotaemic nephritis associated with hypertension has now been shown frequently to be the result of hypertension of long standing, and many cases are on record where the arterial tension has fallen to a lower level with the appearance of renal symptoms—one of many evidences of the damage done by the primary disease. There is even some post-mortem evidence, in cases of early hypertension, that the vascular damage can exist without giving rise to clinical signs. Dumas attaches considerable importance to a family history of gout or diabetes in hypertension. In treatment the main aim is to improve the patient's health, and not to reduce the tension; the body has in many cases adapted itself to a certain raised level, and any efforts to bring about a sudden decrease court disaster in the form of vascular thrombosis. It is noteworthy that many patients feel better after rational treatment even when their tension remains unaltered or has increased. The first therapeutic essential is to investigate the past history for gout or glycosuria, and to treat such a diathesis, if present, by appropriate methods of diet. Even if there is evidence

of renal damage, it is not necessary to interdict meat in the diet entirely, nor should the intake of fluids be increased at the expense of solids. When the malady is progressive nervous sedatives and vaso-dilators may be used with advantage, but all methods of producing a rapid fall of tension, especially venesection, must be used with caution. All forms of sepsis should be treated, and the possibility of a preceding syphilitic infection must always be borne in mind; a course of antisyphilitic treatment is often beneficial even in the absence of serological proof of a suspected infection.

326 Salyrgan as a Diuretic

H. B. SPRAGUE and A. GRAYBIEL (*New England Journ. Med.*, January 22nd, 1931, p. 154) record their experience of salyrgan as a diuretic, having tried it in 60 cases over a period of three years. It is a mercurial salt related to novasurol, but apparently less toxic, and is now being used more as a diuretic than as an antisyphilitic drug. It is supplied in 1 c.cm. ampoules of a 10 per cent. aqueous solution containing 37 mg. of mercury, which is 3 mg. more than that contained in an equal quantity of novasurol; 0.5 c.cm. is given intravenously as an initial dose. If by the next day no toxic effects result, such as the occurrence of albumin, casts, or blood in a previously clear urine, or skin or mucous membrane irritation, 1 or 2 c.cm. may be given every three days as long as necessary in the absence of toxic symptoms. In the authors' series 46 of the patients were suffering from congestive heart failure, 8 from hepatic cirrhosis, 4 from cancer, and 1 each from nephrosis and ovarian cyst. Although one-third of these were in the terminal stages of chronic disease the drug produced diuresis in 80 per cent., and in 55 per cent. of the cases this exceeded twice the fluid intake. Its diuretic effect may often be increased by the use of ammonium chloride or nitrate. Very rarely, toxic effects such as mild renal, gastro-intestinal, or skin irritation may occur; careful technique should prevent the occurrence of cellulitis of the arm and thrombosis of the injected vein, which was the only complication in the series.

327 Toxic Symptoms during Cinchophen Administration

L. PARSONS and W. G. HARDING (*Amer. Journ. Med. Sci.*, January, 1931, p. 115) report four cases of cinchophen poisoning in order to call attention to the fact that intensive dosage with this drug, a compound of phenyl quinoline with carboxylic acid, may produce acute hepatic degeneration; long-continued administration of it in moderate doses may result in subacute and chronic hepatic degeneration. They have collected 63 cases in the literature, and classify the toxic symptoms as: (1) cutaneous manifestations, including pruritus, angioneurotic oedema, urticaria, and macular and papular rashes; (2) anaphylactoid reactions indicated by rapid pulse rate and lowered blood pressure; (3) gastro-intestinal disturbances, such as aphthous ulceration of the mouth, pyrosis, nausea, vomiting, and diarrhoea; and (4) hepatic involvement, shown by the appearance of jaundice. In all the fatal cases which have come to necropsy there have been demonstrated striking pathological changes in the liver. In one of the fatal cases reported by the present authors the patient had taken undue doses of the drug supplied in the form of a quack remedy for rheumatism, and they suggest that this danger may be very considerable.

328 Organic Antimony in Kala-azar

E. B. STRUTHERS (*China Med. Journ.*, January, 1931, p. 1) commends neostibosan (a modification of the diethylamine salt of pentavalent amino-phenyl-stibinic acid) in view of its efficacy and comparative freedom from toxicity. The initial dose for an adult was 0.1 gram injected intravenously; it was found better to give injections on alternate days rather than daily. The maximum average dose was 0.3 gram. About 2.6 to 3 grams in all were sufficient for a cure, but sometimes a second course was required after an interval of a month. Owing to the shortage of bed accommodation, treatment was in some cases carried out in clinics, the patients residing temporarily in hostels or inns. The absence of complications was a prominent feature of the treatment.

Disease in Childhood

329 The Pirquet Reaction in Adolescence

A. FOSTRÖM (*Norsk Mag. f. Laegevid.*, February, 1931, p. 148) carried out the Pirquet test in 1,000 training-ship boys, aged from 15 to 19, coming from all parts of Norway, and found that 44.5 per cent. were positive and 55.5 per cent. negative. The frequency of positive reactions was greater in town boys (50 per cent.) than in country lads (37.8 per cent.); labourers' sons gave the highest proportion of positive results (52 per cent.) and peasants' sons the lowest (30 per cent.). Negative reactions were given by 40 boys in whose families one or more cases of tuberculosis and pleurisy had occurred. The reactions between the ages of 15 and 19 years were not so pronounced as in childhood. About 8 per cent. of the negative reactors proved positive when the test was repeated.

330 Acute Haemorrhagic Nephritis in Childhood

A. SUNDAL (*Tidsskrift f. d. Norske Laegefor.*, February 1st, 1931, p. 148) has studied the 51 cases of acute or chronic nephritis treated in the fourteen-year period January 1st, 1916, to January 1st, 1930, in the children's department of the Rikshospital in Oslo. Among these 51 patients there were 41 suffering from acute haemorrhagic nephritis. There were 24 boys to 17 girls, the youngest being 20 months old, and the majority of the patients being between the ages of 3 and 7. The cases were evenly distributed throughout the year, except for an accumulation in September, October, and November. The disease seemed to begin spontaneously in 10 cases, whereas in the remaining 31 it was a sequel to some other complaint—to an angina faucium in 11 cases, to an acute otitis in 7, to abscesses in the skin or glands in 3, to pyrexia of unknown origin in 3, to scarlatina in 3, to enteritis in 2, to parotitis in 1, and to eczema in 1. The part played by scarlet fever was probably underestimated in this material, and in two of the three cases ultimately recognized as being scarlatinal, scarlet fever had not been diagnosed by the doctors sending the patients to hospital. The first sign of the haemorrhagic nephritis was oedema of the face in 16 cases, macroscopic haematuria in 15, and vomiting in 5. Fever, or pain in the epigastrium or albuminuria, was the first sign of the disease in the remaining cases. In about three-quarters of the cases the temperature was normal on admission and remained so; in the remaining quarter the fever was associated with some inflammatory condition, such as otitis, which was doubtless the cause of it. The blood pressure of 24 patients on the day of admission was on the average about 10 per cent. above normal. In May, 1930, 19 of the 41 patients were examined, and perfectly normal conditions were found in 15 cases. In the remaining 4 cases traces of the disease, such as an abnormally high blood pressure or microscopic haematuria, were still demonstrable.

331 Cyclic Vomiting

I. MORGAN (*Med. Journ. of Australia*, October 18th, 1930, p. 527) defines the chief exciting causes of cyclic vomiting in children associated with the excretion of acetone in the urine or in the breath, as fatigue or over-excitement; foods containing a high percentage of animal fat; the onset of an acute infection; teething; constipation; and the arthritic diathesis. Since there is no impairment of the glucose oxidation, and hypoglycaemia is present during an attack, the use of insulin is contraindicated, and the attack can be aborted by giving sugar. Clinical evidence supports the theory that as soon as the glycogen reserve is used up oxidation of fats is incomplete and ketosis occurs. In treating an attack all food should be withheld, and, even though vomiting is frequent, glucose and water be administered continuously in a mixture containing five or six teaspoons of cane sugar in a glass of water with 10 grains of sodium bicarbonate. In severe cases the glucose can be given rectally. In prevention, excess of foods containing animal fats must be avoided, and two or three lumps of sugar may be taken after meals, thus enabling an increased amount of fat to be tolerated. Occasional small doses of sodium bicarbonate may be useful.

Obstetrics and Gynaecology

332 Vaginal Extirpation of Uterus and Adnexa

P. WERNER (*Surg. Gynecol. and Obstet.*, February 1931, p. 233) describes a modification of his method of extirpating the uterus and adnexa on both sides by the vaginal route, by splitting the uterus *in situ* and so extirpating each half with its adnexa separately. Such a procedure is indicated when inflammatory adnexal tumours with perimetrial adhesions are present, and where, owing to the failure of conservative treatment, total extirpation becomes necessary. It is also useful in vaginal hysterectomy for bleeding or for fibroids, and it is especially applicable to cases in which the uterus is fixed. Convalescence is generally rapid, and the danger of peritonitis is absent or very slight. General or spinal anaesthesia is essential, and no special pre-operative treatment is necessary; the experience of many hundred cases shows that any fear of prolapse of the intestine is unfounded. Since it is generally impossible to stop the bleeding completely after freeing inflammatory tumours from their adhesions, the peritoneal cavity must not be closed, but a strip of iodoform gauze is loosely placed therein and led out through the vagina to provide drainage. A portion of this is pulled out and cut off on the fourth day and each day following, so that by the seventh or eighth day the whole of the gauze has been removed. Two days later vaginal douches with potassium permanganate should be given until all discharge disappears. The patient is allowed up on the third or fourth day after operation, and can generally leave the hospital by the eighth or tenth day.

333 Puerperal Infection and Influenza

J. VORON and A. BROCHIER (*Journ. de Méd. de Lyon*, February 5th, 1931, p. 67) define the sources of infection as extragenital, including the skin, mouth, and ears ; and genital—for example, vaginitis, Bartholinitis, or other lesions in the genital tract. The fact that these lesions often exist without causing puerperal fever shows that the factor of individual resistance has to be considered, and, moreover, an infection associated with these local lesions is often mild in character. Since puerperal fever is commoner in the winter months when influenza is more prevalent, the authors are inclined to look upon this infection as a potent predisposing cause, which diminishes the local or general resistance. They believe that vaginal examination, with due antiseptic precautions, does not appear to add materially to the risk of puerperal fever, and that there appears to be a definite group of cases which may truly be called autogenous.

334 Early Diagnosis of Extrauterine Pregnancy

S. R. MEAKER (*New England Journ. of Med.*, February 12th, 1931, p. 318), discussing the early diagnosis of extrauterine pregnancy, remarks that the presence of this condition should always be suspected when a woman of child-bearing age exhibits a menstrual disturbance of short duration and pelvic pain of recent origin. If there is no obvious acute inflammation, the existence of any considerable degree of pelvic tenderness, which is aggravated by movements of the uterus, points strongly to the presence of an ectopic gestation. Meaker reports four cases, and discusses the differential diagnosis from such conditions as threatened miscarriage, pelvic inflammation, pregnancy complicated by inflammatory disease, and torsion of the appendages. After discussing the various diagnostic aids, to which he attaches only a limited value, he emphasizes by way of contrast the characteristic nature of the pain; this is irregular in occurrence, severe in degree, and sharp in character, often radiating to the shoulders, the back, or the thighs. It may be superimposed at irregular intervals upon a background of constant, dull pelvic discomfort. When such a pain is associated with attacks of faintness it may be considered almost pathognomonic.

Pathology

335 The Erythrocyte in Pernicious Anaemia

M. M. WINTROBE (*Amer. Journ. Med. Sci.*, February, 1931, p. 217) discusses the haemoglobin content, volume, and thickness of the red blood corpuscle in pernicious anaemia, and comments on the changes associated with liver therapy. In a series of 100 blood examinations he found that the mean corpuscular volume and the mean corpuscular haemoglobin content were significantly above the normal during relapses. The increase in the mean volume was much greater than the corresponding increase in the average cell diameter, and such volume measurement is therefore commended as being the more useful method of determining the change in the erythrocyte in this disease. The mean corpuscular volume and haemoglobin content were found to be closely correlated with the red cell count, higher values being found progressively as the number of cells diminished. Abnormally high degrees of haemoglobin concentration were not found, and Wintrobe disagrees with the view that in pernicious anaemia there is supersaturation of the red corpuscles. Liver therapy induced decrease in the size and haemoglobin content of the erythrocytes concurrently with the improvement in the total count.

336 Cultivation of Ducrey's Bacillus from Soft Chancres

H. SOSA (*C. R. Soc. de Biologie*, February 13th, 1931, p. 385) noticed that Ducrey's streptobacillus on the surface of blood agar appears in the form of short chains, with the individual members poorly stained or deformed; in the water of condensation, however, it is present in the form of long chains, with the individual members well stained. For this reason he attempted to cultivate the bacillus in a fluid medium. The technique that he found most satisfactory for isolation is as follows. The chancre is thoroughly cleaned with iodine and alcohol on the day previous to examination, and covered with collodion. The pus on the surface is diluted in 0.5 c.cm. of broth, and inoculated into sterile tubes containing 0.2 c.cm. of defibrinated rabbit's blood mixed with 0.8 c.cm. of saline solution. One loopful of the pus suspension is used for inoculation. The tubes are shaken and incubated at 34° C. Films are made after fourteen and twenty-four hours, and stained by Gram's method. Subcultures should be made each day for two or three days, and then inoculated on to blood agar. Usually only one passage in the blood saline medium is necessary to obtain the organisms in pure culture.

337 The Blood Sedimentation Rate in Gynaecological Conditions

A. MATHIEU and others (*Amer. Journ. of Obstet. and Gynecol.*, February, 1931, p. 197), as a result of using the modified Westergren technique of the sedimentation test in over 2,000 estimations, report that the sedimentation rate is increased after the third month of pregnancy and until the fourth week after delivery, and that its observation affords a useful indicator of certain abnormal gynaecological conditions. Thus it is definitely raised when there is haemorrhage, infection, or tissue necrosis, and the degree of increase was found to be definitely proportionate to the severity and extent of the morbid process. The authors demonstrated also that the injection of foreign protein increased the rate. This test is recommended as being of great value in following the clinical course sometimes, especially in cases of salpingitis, and abnormalities which are not satisfactorily explainable should always indicate the need of more exhaustive examination. While there are exceptions to the test being invariably a criterion of disease, it has a very special value in drawing attention to infection or malignancy which might previously have been unobserved otherwise, and the speed with which the test is carried out is an additional merit. The authors remark that repeated determinations on the same individual are essential if the maximum amount of information is to be obtained.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

338 Etiology of Chorea

R. LENZ (*Wien. Arch. f. Innere Med.*, January 20th, 1931, p. 95) discusses the etiology and pathology of chorea and refers to the toxicity of nirvanol (see *Epitome*, February 21st, para. 172). He regards the streptococcal origin of infective rheumatism as definitely proved; it is a disease of adolescence, appearing about the 16th year as arthritis or chorea in 60 per cent. of all cases. Dental sepsis and tonsillitis at that age play only a subordinate part in the etiology. Rheumatic chorea is attributed to infective emboli of cardiac origin, initiating a cerebral periarteritis, followed by a round-celled exudate and, in severe cases, a choreic polioencephalitis. The arterial walls undergo degenerative changes, and the generalized infection produces cardiac dilatation, tachycardia, and albuminuria. In a fatal case of chorea in a boy, aged 15, the small ganglion cells of the neostriatum showed advanced degeneration, and in the subthalamic region a haemorrhage was found. Lenz believes that all concurrent systemic changes found in chorea are due to these generalized arterial lesions. He prescribed nirvanol in 27 cases, but it produced toxic symptoms in 41 per cent. of the patients; 19 improved, but of these 10 exhibited toxic symptoms—fever and dermatitis—while 5 had dermatitis only. Further, three patients had hyperpyrexia but no rash, though polyarthritis occurred. Two patients recovered completely without toxic symptoms. Nirvanol is cumulative in action, and the maximal approximates to the toxic dose. Lenz affirms that the proofs of definite arterial lesions of the central nervous system in chorea are: (1) degenerative changes in the small ganglion cell system of the corpus striatum, and in the cells of the hypothalamic nuclei; and (2) inflammatory vascular lesions in comparatively chronic, mild cases, or acute (polioencephalitic) cases. Nirvanol relieves irritation of the large cell systems of the corpora striata. It appears to have a specific organic action, with a narrow margin between the maximal and the toxic doses. Toxic albuminuria may occur early or late. Toxic pyrexia may subside when cerebral congestion is relieved.

339 Dengue Fever

J. S. SIMMONS, J. H. ST. JOHN, and F. H. K. REYNOLDS (*The Philippine Journ. of Sci.*, January–February, 1931, p. 1) present a comprehensive experimental study of dengue which they made in the Philippine Islands. Two important vectors of the disease are the mosquitos *Aëdes aegypti* and *Aëdes albopictus*; these insects are influenced by variations in the rainfall and temperature, and dengue shows corresponding seasonal variations. The virus was not identified microscopically; in certain circumstances it may be passed through diatomaceous earth filters. In man the average incubation period was between five and six days. The onset was abrupt, with fever, headache, flushing of the face, aching of the eyes, pain in the back and extremities, and leucopenia on the first or second day after the onset. As the disease progressed, further symptoms were primary and secondary rashes, post-orbital pains and backache, pains in the limbs and joints, altered sense of taste, and adenopathy. The leucopenia was mainly due to a decrease in the lymphocytes and mature neutrophilic granulocytes. The marked cellular degeneration indicated that the leucopenia was due to a destruction of these cells; it also seemed possible that the virus might multiply within the leucocyte, causing its death. The immunity following an attack of dengue is probably completely protective in most cases. With the possible exception of complement-fixing bodies, specific antibodies were not demonstrated in the serum during and following recovery from the disease. Though results so far have been negative, it is believed that an effective prophylactic vaccine may eventually be obtained. Dengue outbreaks in lower animals are also discussed.

340 Diagnosis of Congenital Syphilis

D. NABARRO (*Brit. Journ. Vener. Dis.*, January, 1931, p. 1) discusses certain symptoms common in congenital syphilis, the non-recognition of which leads to diagnostic errors. Frequently a child is born apparently healthy, but it develops snuffles, and some weeks later a rash, which must be differentiated from the napkin rash due to irritation by urine; the latter rash is usually brighter and less extensive. Condylomata, not common in children, are rarely seen before the age of 1 year; these lesions are usually quite characteristic. Syphilitic osteo-periostitis or epiphysitis are demonstrable by systematic *x*-ray examinations. A mild hydrocephalus may be associated with inherited syphilis in early childhood. An important symptom of neurosyphilis, often overlooked, is inequality of the pupils with or without reaction to light and accommodation. Spastic paraplegia is another overlooked symptom; this may be a mono-, di-, or paraplegia. Bilateral hydarthrosis, especially of the knee, is usually of a syphilitic nature. Interstitial keratitis is the commonest symptom of late inherited syphilis. Minor degrees of Hutchinsonian teeth often occur. Nabarro emphasizes the importance of the Wassermann test in all doubtful cases, and the need of its repetition if the reaction is doubtful. He believes that mercury alone is not a reliable drug in congenital syphilis, but that it should be associated with an arsenical; as soon as the diagnosis is made he begins injections of some arsenical or bismuth preparation. In certain cases it is advisable to start with mercury for a few weeks, and then to give very small arsenical injections.

341 Erythema Nodosum and Tuberculosis

A. CEDERCREUTZ (*Finska Läkaresällskapets Handlingar*, January, 1931, p. 61) has investigated the after-histories of the patients in private or hospital practice who, before 1910, had suffered from erythema nodosum or multiform exudative erythema. There were 63 cases of erythema nodosum, only 10 of the patients being males; of 78 patients with multiform exudative erythema 40 were males. Both these skin diseases occurred most frequently between the ages of 20 and 40, and they were most common in the colder months of the year. Cedercreutz succeeded in tracing 26 of the 63 patients who had had erythema nodosum, and among these 26 there were nine deaths. Only in two instances was pulmonary tuberculosis the cause of death; it had proved fatal from eleven to fifteen years after the outbreak of the erythema nodosum. Of the 78 cases of multiform exudative erythema 36 were traced, and as many as 20 of these patients were found to have died, but only in five instances was the cause of death notified as being pulmonary tuberculosis. This investigation suggests that patients who have undergone one or other of these two skin diseases are not as a class peculiarly susceptible to fatal pulmonary tuberculosis.

342 Post-vaccinal Encephalitis and Generalized Vaccinia

M. WEICHSEL (*Monatsschr. f. Kinderheilk.*, January 30th, 1931) records the case of a male infant, aged 17 months, who nineteen days after vaccination which had run a normal course developed severe cerebral symptoms and convulsions, followed by left spastic hemiplegia. Varicella and epidemic encephalitis could be excluded, and the cause of the generalization of the vaccinia was obscure. Inoculation of a rabbit's testicle with the cerebro-spinal fluid, and of its cornea with the contents of a vesicle, had no result. The long incubation period of nineteen days was remarkable, but several cases in which it was even longer have been observed in both England and Holland.

343 Pancreatitis complicating Mumps

Pancreatitis is an infrequent complication of mumps; at the same time it presents a characteristic symptom-complex. M. B. BRAHDY and I. H. SCHEFFER (*Amer. Journ. Med. Sci.*, February, 1931, p. 255) report 13 cases in 252 patients during slightly over a year. The disease may occur in either sex at any age. In this series the age extremes were 6 and 30 years. The onset is sudden between the fifth and eleventh days of the illness, with nausea, anorexia, and fever. The temperature rises in a day or two to 103° or 104° F. in moderately severe cases, and returns to normal in three to five days. As a rule the pulse is relatively slow. Patients complain of malaise, nausea, headache, and abdominal pain; they usually vomit. In the present cases the pain and tenderness were always referred to the upper part of the abdomen. Most of the patients were constipated; diarrhoea, reported by other observers, did not occur. There was no glycosuria. Pancreatitis may be confused with other complications of mumps, such as meningitis, aural complications, and oöphoritis in females. Only two necropsies have been recorded in the literature. The pathological pancreatic changes reported by Lemoine and Lapasset are described; these are comparable to those found by Wollstein in the parotid glands of monkeys experimentally inoculated with mumps. Reports of three illustrative cases are given.

344 The Intradermal Tuberculin Reaction

A. MONCRIEFF (*Quart. Journ. Med.*, January, 1931, p. 153) discusses the value of the intradermal tuberculin test, and reports a series of 206 children suffering from various illnesses who were submitted to it. He concludes that in pneumonia a positive reaction by no means necessitates a gloomy prognosis, and a negative one does not exclude tuberculosis if the usual dose of 0.1 mg. is employed. In two cases of acute bronchitis positive results were obtained, but the conditions nevertheless proved subsequently to be non-tuberculous. A general survey of the 118 cases leads Moncrieff to give a warning that the instances where the Mantoux intradermal tuberculin test is helpful are limited. The value of a negative reaction is reduced by four possibilities—namely, the brand of tuberculin used may not be potent; the injection may have been made subcutaneously instead of intradermally; the patient may be one of the small group where bovine tuberculin is necessary to obtain a positive result; and the patient may be in such an acute state of tuberculosis that a negative result is obtained with ordinary doses of tuberculin. A positive reaction implies at the most that there has been some previous infection with tuberculosis, but the test must be carefully controlled. Even at an early age a positive reaction should not be allowed to establish a diagnosis, but should merely be one of the factors in reaching it.

Surgery

345 Cerebellar Astrocytomas

H. CUSHING (*Surg., Gynecol. and Obstet.*, February, 1931, p. 129) in a critical review of 76 cases records experiences with the cerebellar astrocytomas, gliomatous tumours having a neoplastic basis composed of highly differentiated neuroglial cells known as astrocytes. The symptoms usually date from childhood, and include periodical morning headache and vomiting. Secondary hydrocephalus invariably results from their mid-cerebellar situation, leading to choked disc so insidious in origin that impaired vision may be the first symptom noticed; the tumour may attain considerable size before any cerebellar signs of instability become manifest. Headache is more often frontal than suboccipital, and the symptoms depend more upon the variability of tension of the secondary hydrocephalus than upon purely local factors. The physical signs of cerebellar involvement may be inconspicuous; nystagmus is frequently absent, and the hydrocephalus is often out of all proportion to the determinable cerebellar signs. Ataxia, when present, mainly affects the lower extremities, and, while there is often some suboccipital tenderness, tilting of the head is not noticeable owing to the usual mediate position of the growth. The tumours may be either compact or largely cystic, in which latter condition recurrence of symptoms after operation is inevitable unless the mural nodule of tumour is identified and removed. The tumours may be exposed on the surface or be wholly concealed; if buried, they can be exposed and removed under local anaesthesia by means of a vertical incision through the vermis. The astrocytomas are almost equally divided between the sexes, and, though probably congenital in origin, a history of pre-symptomatic trauma is given in a large proportion of the cases.

346 Hydatid Cysts of the Lung

J. ABADIE (*Bull. et Mém. Soc. Nat. de Chir.*, February 7th, 1931, p. 124) reports ten cases of hydatid cysts of the lung which were treated surgically. The disease, which is rare in France, occurs frequently in Northern Africa. Although statistics generally show that hydatid cysts are most common in men, and in the right lung, it was found that in the ten cases under review the incidence was equal in the two sexes and occurred as often in the left lung as in the right. Five of the patients were under the age of 20, the two youngest being only 9. Typical vomiting and expectoration are the most characteristic symptoms, but diagnosis is confirmed by the use of radiography, which discloses the site of the cyst. Treatment depends on the position and condition of the cyst; if it is central and not infected immediate operation is not advisable, whereas if it is infected and in a central position operation must be performed immediately in spite of the risk. If the cyst is peripheral but not infected an operation should only be undertaken after careful deliberation. In cases where an operation discloses adhesions, these should be left, the cyst being opened and the pocket removed. If the cyst is suppurative ample drainage must be left, and in any case it is advisable to leave a small transitory drain which can be removed if all goes well. In cases where no adhesions are present a two-stage operation is advocated. One patient who was intensely cyanosed was relieved immediately by the attachment of the pleural drain to a tube which was sunk in a jug of water placed near the ground. There were no cases of post-operative bronchial fistula, and all ten patients made a good recovery.

347 Renal Sympatheticotonus and Sympathectomy

S. H. HARRIS and R. G. S. HARRIS (*Canadian Med. Assoc. Journ.*, February, 1931, p. 235) believe that renal sympatheticotonus is a definite clinical and pathological entity. The possibility of a neuropathic basis was considered in many patients with renal pain in whom urological examination revealed little or no abnormality. Accordingly, a denervation of the kidney (renal sympathectomy) was performed on one patient; the results were so satisfactory that the operation has since been performed in 28 cases with equally gratifying effects. The nerve supply of the kidney and the operation are described. The latter, though extremely tedious and necessitating painstaking care, has been found to relieve the pain completely and permanently. The following syndrome definitely indicates renal sympatheticotonus: positive pain reproduction test on cystoscopic examination; positive pyeloscopic and pyelographic findings; delayed emptying time of the renal pelvis and calyces, or possibly of a single calyx; recurrence of pain after its temporary relief by eserine; evidence of generalized sympatheticotonus, which may be most marked on the side of the lesion; negative urinary findings on microscopical and cultural examinations; proved absence of organic ureteral stricture. The indications for sympathectomy fall broadly into three groups: irregular and incomplete contractions of the calyces and pelvis, so that the peristaltic impulse either does not reach or does not pass beyond the uretero-pelvic junction; marked slowing down with irregularity and increased power of the contractions, associated generally with dilatation of the pelvis and clubbing of the calyces; and dilatation and immobility of a single calyx. Delayed emptying occurs in all the groups.

348 Actinomycosis of the Abdomen

L. P. GOOD (*Arch. of Surg.*, February, 1931, p. 307) states that out of 62 cases of abdominal actinomycosis the primary lesion occurred in the ileo-caecal region in 77.5 per cent. It was not found possible to substantiate or contradict the theory that the organism is carried into the tissue by some foreign material such as straw, nor was evidence obtained that an injury, such as might be caused by straw, provided a point of entry for the organism already present in the mouth; 12 of the 62 patients were farmers. Symptoms of abdominal actinomycosis may be chronic, when the presence of a mass in the right lower abdominal quadrant is usually the first indication; in the acute form there is pyrexia with pain and tenderness. A diagnosis of appendicitis is generally made, and operation frequently discloses an appendix abscess, which is drained. Several weeks after the operation, however, symptoms recur and another abscess is found either in the incision or in some other part of the right flank or renal region, which, after drainage, leaves a sinus. The fungus makes its way by direct growth along the fascia, peritoneum, and muscles until a new abscess and sinus is formed. Later the blood stream may become infected and metastatic abscesses develop in any part of the body. If the lesion is primary in the ileo-caecal region the lung is affected in 20 per cent. of cases, but if the actinomycosis originates in the upper part of the abdomen the lung is affected in 50 per cent. Treatment, which must be surgical, consists of incising and draining the abscesses, curetting the sinuses, and establishing perfect drainage, in conjunction with medical treatment and *x*-ray or radium therapy. Massive doses of a saturated solution of potassium iodide have given good results, but the prognosis is poor. Of the 62 cases reported, 29 patients died, 7 did not improve, and 6 had improved; the disease had apparently been arrested in 8 cases, and 12 cases could not be traced.

349 Acute Necrosis of the Pancreas

M. MARTENS (*Med. Klinik*, January 30th, 1931, p. 155) believes that acute pancreatic necrosis is more common than was formerly supposed. With the necrosis of the gland, in whole or in part, are associated haemorrhage, inflammation and fat necrosis, and self-digestion of the pancreatic tissue by its own secretion rendered prematurely active within itself. Possible predisposing factors include disease of the gall-bladder or bile ducts (especially in pregnancy and labour), gastric or duodenal ulcers, threadworm in the pancreatic duct, pancreatic stone, and excesses in eating and drinking; stout elderly women are frequent subjects. Among external causes are violence, accidental trauma during operation, and the passage of a sound up the ducts of Santorini or Wirsung. The symptoms are characteristic—namely, sudden onset of steady, excruciating pain in the upper part of the abdomen, radiating to the back and occasionally to the left shoulder ; the abdomen is soft, and a tumour lying in the position of the pancreas may be located. Tenderness is found, not only as in cholecystitis on the right side, but also passing towards the left. Vomiting is usual; it is not faecal, but the vomit contains blood, at first altered, and later fresh; this associated with anuria and cyanosis is a bad sign. The pulse, temperature, and degree of leucocytosis are variable, but collapse is common. There is no passage of faeces or flatus, but the bowel is not palpable. An *x*-ray examination gives a characteristic picture. Rise of diastase in the urine to over 64 units is almost diagnostic; the blood sugar is high. The differential diagnosis must be made from a perforating peptic ulcer, ileus, appendicitis, embolism, or thrombosis of mesenteric vessels; diseases of the gall-bladder and ducts are frequently concurrent. The most satisfactory treatment is early and very careful operation. The after-treatment is difficult; insulin may be necessary. Complications and even recurrences may ensue. As prophylaxis the author suggests early treatment of the predisposing condition, and examination of the pancreas in gall-bladder operations; an estimation of the diastasic content of the urine is an important precautionary measure in doubtful cases.

Therapeutics

350 Sodium Iodide in Nasal Infections

A. LEWY (*Arch. of Otolaryngol.*, January, 1931, p. 97) reports successful results in hypertrophic rhinitis and the early stages of acute coryza from the hypodermic injection of a 3 per cent. solution of sodium iodide. After the solution has been prepared and sterilized, it is allowed to stand for several days in a white glass-stoppered bottle until free iodine appears, when 1 c.cm. of the solution is injected. There is sometimes a temporary exacerbation of the symptoms, and five days are allowed to elapse before the next injection. After some weeks too much free iodine is present, and the solution must be discarded, since its use is attended by excessive pain. In some cases the solution was diluted ten times, with a view to minimizing the local reaction, but the results were more doubtful. Several patients were relieved in this way from chronic rhinitis after other treatment such as local applications and allergic stimulation had failed. The author commends for further trial this method, which was originally suggested by H. Sternberg and M. Sugar.

351 Rectal Injections of Hypertonic Saline Solution

R. SOUPAULT (*Paris Méd.*, February 14th, 1931, p. 154) has found intravenous injections of hypertonic sodium chloride solution most valuable in relieving post-operative and other grave forms of intestinal obstruction. One patient, fifteen days after appendicectomy for perforation and purulent peritonitis, developed alarming symptoms of obstruction. These were relieved rapidly by the intravenous injection of hypertonic saline solution. Soupault could not determine whether the success was due to its effect on the general toxic condition, or whether it had a more direct action on the intestinal musculature. In any case, the toxic symptoms of vomiting and tachycardia subsided, and the patient passed much flatus. On the hypothesis that the hypertonic saline solution might have a specific action on peristalsis, Soupault decided to try the rectal injection of hypertonic solution in the case of an obese woman suffering from paralytic ileus of three days' duration following cholecystectomy. The patient was greatly distressed by abdominal distension and consequent dyspnoea, so 50 c.cm. of a 15 per cent. sodium chloride solution (containing 75 grams of the salt) was injected. Within a few minutes a great volume of flatus was passed, followed by copious evacuations during the next twenty-four hours. Soupault had a similar success in a woman operated upon for a pelvic peritonitis following ruptured pyosalpinx. Another patient was a cachetic old man who had repeated attacks of partial obstruction due to some chronic inflammatory adhesions. Small injections of hypertonic saline solution invariably relieved him. Soupault now employs this method as a routine procedure in cases of threatened obstruction, and also in cases of localized pelvic peritonitis, acute pericholecystitis, and subacute appendicitis. He considers that it is indicated in all obscure subacute abdominal cases which do not need an operation. The technique is very simple: 100 c.cm. of 10 per cent. hypertonic sodium chloride solution is injected into the rectum through a small catheter, sterilization of the solution being unnecessary.

352 Treatment of Addison's Disease

L. G. ROWNTREE and others (*Journ. Amer. Med. Assoc.*, January 24th, 1931, p. 231) record the treatment of a series of cases of Addison's disease with a hormone derived from the cortex of the suprarenal gland, and lay down the following principles of therapy in this disease. In addition to the most assiduous attention to the details of general care, dieting, and resting, three forms of treatment are of importance. The dehydration which occurs during the crises should be countered by the administration of a solution containing dextrose (10 per cent.) and sodium chloride (1 per cent.); the authors consider that this is unquestionably the best method to adopt in the absence of supplies of the hormone. The second form of treatment

is the " Muirhead " method of pushing adrenaline to the point of intolerance by subcutaneous injections and maximum doses by the mouth and rectum; this is effective in some cases, but apparently valueless in others. The third line of treatment is the daily intravenous injection of 10 to 20 c.cm. of the cortical hormone in divided doses, the immediate results of which in a crisis are most gratifying. Such injections prove effective as a rule within forty-eight to seventy-two hours, but it remains to be shown whether such a combination of various lines of treatment will sustain life and health for a number of years. This is not the case with the Muirhead method alone, but its association with the cortical hormone seemed much more hopeful. This hormone is said not to be yet available commercially, but the authors state that the problem of its preparation is engaging the attention of the council on pharmacy and chemistry of the American Medical Association.

353 Massive Doses of Sodium Salicylate in Acute Rheumatism

CASSAËT, GRÉ, and J. LÉVY (*Journ. de Méd. de Bordeaux*, February 20th, 1931, p. 138) describe two cases in which large doses of sodium salicylate proved very efficacious. A previously healthy woman, aged 38, had a sudden attack of pain in the right hypochondrium, with frequent dry cough. Basal pleurisy was found, and two days later a pericardial friction sound appeared. After eight days transient arthralgias occurred. Daily doses of 185 grains of sodium salicylate were given, and all symptoms disappeared in two days, but a mitral systolic bruit appeared subsequently and became permanent. Notable features in this case are the unusually late incidence of a first attack of acute rheumatism; the occurrence of pleurisy and pericarditis before arthritis; and the failure of large doses of sodium salicylate to prevent endocarditis. The second patient, a woman aged 49, had had acute articular rheumatism for two months, and had been taking more than 2 drachms of sodium salicylate daily. She had generalized arthritis, pleurisy, and dry pericarditis, and was very ill, emaciated, and anaemic. She was given by the mouth 185 grains of sodium salicylate each day in 35 ounces of alkaline water, together with intravenous injections twice a day of 15 grains of this salt in 5½ drachms of glucose solution. The pyrexia subsided, and became normal on the third day. The treatment was continued for twelve days; the intravenous injections were then discontinued and 216 grains of sodium salicylate were given daily by the mouth, but two days later the temperature returned to 102.6° F. The oral administration was stopped, and an intravenous dose of 31 grains of sodium salicylate was given; the temperature fell and the patient remained afebrile until discharge. The pleurisy disappeared, but a mitral lesion developed. The authors conclude that in refractory cases of acute rheumatism the intravenous administration of sodium salicylate is indicated.

354 Calcium and Parathyroid in Chronic Ulcerative Colitis

B. HASKELL and A. CANTAROW (*Amer. Journ. Med. Sci.*, February, 1931, p. 180) report a series of cases of ulcerative colitis in which prompt improvement followed the administration of calcium lactate or gluconate by the mouth, associated with intramuscular injections of parathyroid extract. Eleven out of thirteen patients became clinically well in from four to eight weeks, and remained well for periods up to two years, during which observation was continued. The mucous membrane of the lower part of the bowel regained its normal appearance in eight. In two instances there was a slight and only temporary relapse. The authors state that experimental calcium studies in one group of patients suffering from mucous colitis, and in another group with ulcerative colitis, suggest that the ulcerative lesions are not infrequently secondary to long-standing mucous colitis. The treatment included a cellulose-free non-irritating dietary, the use of belladonna and kaolin, and doses of 20 to 30 grains of ammonium chloride, which, by intensifying the hydrogen-ion concentration of the tissues, enhanced the availability or utilization of the tissue calcium. The average adult dose of the parathyroid extract was 20 to 30 units, according to the body weight. The authors' observations indicated that it resulted in an increase in the availability and utilization of the calcium, tending also to restore a normal ratio of diffusible to non-diffusible calcium. The lactate or gluconate of this metal was administered orally in doses of 30 grains or 60 grains respectively, three or four times daily, and between three and four hours after meals. Another benefit of this treatment was the diminution of colonic spasm, even when high doses of belladonna had previously proved ineffective. The authors discuss the way in which this combined treatment acts upon the diseased tissues, and recommends its more extensive adoption.

355 Percutaneous Diphtheria Immunization

A. F. ABT and B. F. FEINGOLD (*Amer. Journ. Dis. Child.*, January, 1931, p. 8) since July, 1929, have used Loewenstein's percutaneous method for producing an active immunity against diphtheria in 62 Schick-positive children aged from 11 months to 17 years. The material used was an ointment containing not only diphtheria toxoid, but also an unfiltered culture of dead diphtheria bacilli. Three rubbings were given at weekly intervals, the back, chest, abdomen, or arms being used as the site for them. In 44 of the 62 children (70.9 per cent.) a negative Schick reaction followed the last rubbing in periods varying from 2½ to 7 months. The authors maintain that the percutaneous method produces active immunity in as large a percentage of cases as is induced by the other methods now in use, and possesses the following advantages: (1) it avoids the dangers which may be produced by introducing a foreign protein directly into the lymphatic circulation; (2) it eliminates the danger of liberating free toxin in the system; (3) it avoids the occurrence of constitutional reactions; and (4) it does not sensitize the child to other serums. A. H. KEGEL and B. M. GASUL (ibid., p. 44) applied the percutaneous method in 47 Schick-positive children, aged from 12 months to 10 years, at an infant welfare station at Chicago, three inunctions being given with ten-day intervals between them. Six weeks after the last inunction a control Schick test was performed, and 26, or 53.3 per cent., gave a negative reaction. No local or general reactions were observed.

Anaesthetics

356 Indications for Spinal Anaesthesia

Reviewing 500 cases of spinal anaesthesia induced during the last three years, J. PARRY (*Canadian Med. Assoc. Journ.*, January, 1931, p. 64) concludes that nearly all cases in which the operative field lies below the diaphragm are suitable for this type of anaesthetic. Operations above this level are at present excluded, though the author has performed double amputation of the breasts in one case, in addition to cholecystectomy, without any difficulty. Vasomotor depression constitutes the chief risk in spinal anaesthesia, and, consequently, the lower the segmental nerve block is established, the safer the case should be. Commenting on his results, Parry remarks that he has found 1 c.cm. of spinocain very useful in the disagreeable procedure of cystoscopic examinations in male patients. Contraindications to spinal anaesthesia include a profound state of shock, or severe haemorrhage with low blood pressure, but in any such case it is questionable whether any operation with any type of anaesthetic is justified before suitable pre-operative treatment has been administered. Other contraindications are: ankylosis of the spine, rendering spinal puncture impossible; infections of the back over the site of puncture, making meningitis a conceivable contingency; and disease of the spinal cord, where, in the event of paralysis supervening, the spinal anaesthesia might be blamed. The chief risk during spinal anaesthesia is cerebral anaemia, due to paralysis of the vasomotor fibres that leave the cord between the

second dorsal and third lumbar segments. This may be prevented or corrected by the administration of ephedrine or of a slowly diffusible novocain solution, or by adopting the Trendelenburg position. The author emphasizes the importance of careful observation of the patient during the onset of the anaesthesia, which in some cases takes twenty-five minutes and in others only four. The blood pressure should be recorded every three or four minutes, especially during the first half-hour, and arrangements should be made in advance for giving intravenous injections promptly should they be required.

357 Ethyl Chloride as a General Anaesthetic for Children

Although ethyl chloride (without admixture of other anaesthetics) has been used as a general anaesthetic for more than thirty years, H. SCHAEFER (*Schmerz Narkose-Anaesthesie*, December, 1930, p. 330) finds a great divergence of opinion regarding its safety that requires careful investigation. Ethyl chloride has been used very largely in brief operations and was regarded as a safe general anaesthetic, but a death occurred in 1902. Schaefer classifies all published cases as uncomplicated and complicated. In some uncomplicated cases anaesthesia was prolonged for 20 to 50 minutes. Rose has recorded 15,000 successful cases in children and adolescents up to the age of 18. Schaefer considers that ethyl chloride is indicated chiefly in operations on the nose, throat, and ear, and mentions that two authors reported 500 successful tonsillotomies. McCardie described the case of a boy, aged 11, who after five minutes of ethyl chloride anaesthesia vomited for thirty hours; he vomited for a similar period after chloroform. Seiffert described two cases in children about 2 years old. After the administration of 25 drops of ethyl chloride in a closed ether mask, apnoea with alarming symptoms of collapse occurred, but both recovered with artificial respiration, heart massage, and the administration of oxygen and camphor. In another case of collapse an intracardial adrenaline injection was successful. Hayward has recorded severe collapse, asphyxia, and cyanosis; he has discarded ethyl chloride as a general anaesthetic. Schaefer has collected nine fatal cases, and classifies the causes of these fatalities as (1) primary heart failure; (2) irritation of the olfactory and fifth nerves; (3) hypopiesis and sudden cardiac paralysis; (4) respiratory paralysis; (5) toxic action on the heart; and (6) psychic shock. He concludes that, whatever theory is accepted, it is evident that the use of ethyl chloride is not free from danger.

358 Pernocton

B. FRIEDLAENDER (*Anesthesia and Analgesia*, January–February, 1931, p. 26) records 735 cases in which pernocton was used as an anaesthetic without a single fatality. This drug (the sodium salt of the secondary butyl-β-bromallyl-barbituric acid) combines the advantages necessary in anaesthesia of possessing a long side-chain and a halogen replacement of the hydrogen atom without the disadvantages associated with some similar compounds—namely, insolubility and toxicity. It produces a state closely related psychologically to natural sleep, but the patient is impervious to external stimuli. It completely eliminates the emotional disturbances which may be so detrimental in inhalation anaesthetics. Pernocton should be administered in a dosage relative to the body weight; the average dose is 1 c.cm. per 12.5 kilos of weight. It should be given very slowly—1 c.cm. every one to two minutes. The dose may be diminished if psychological preparation is provided, and should never be large enough to abolish the reflexes. Pernocton may be used effectively as the sole anaesthetic for painful examinations, minor operations, and many obstetrical procedures. In major operations it should be used as a deep hypnotic for induction, and be associated with a small amount of ether. Friedlaender claims that pernocton is an ideal anaesthetic, since it combines efficacy and the production of benign psychic conditions with a minimum of toxicity and psychological disturbance.

Obstetrics and Gynaecology

359 Chronic Cystic Mastitis

C. SEMB (*Nordisk Medicinsk Tidskrift*, February 7th, 1931, p. 81) of the Ullevaal Hospital in Oslo discusses the pathology of chronic cystic mastitis and the divergent opinions as to this condition being a new growth, an inflammatory reaction, a degenerative process, or a developmental anomaly. He finds the average age of patients suffering from fibro-adenomatosis simplex to be about 33 years, and of those with fibro-adenomatosis cystica to be about 44 years, so that if the one is a later stage of the other the change takes on an average about eleven years. But fibro-adenomatosis simplex may remain as such or even disappear spontaneously. In a series of about 600 tumours of the breast, Semb found fibro-adenomatosis as a disease *sui generis* in just over 23 per cent., about one-third of these cases belonging to the class fibro-adenomatosis simplex, and about two-thirds being cases of fibro-adenomatosis cystica. He regards this condition as precancerous, and while he found malignant disease in only about 2 per cent. of his cases of fibro-adenomatosis simplex, it occurred in about 24 per cent. of patients suffering from fibro-adenomatosis cystica. Fibro-adenomatosis was most common among married nulliparae, whereas it was practically non-existent among multiparae. Of all his 600 cases of tumours of the breast, a bare 50 per cent. were malignant, a bare 30 per cent. were benign, and the remainder represented transitional forms. As for the treatment of fibro-adenomatosis simplex in young women, he recommends conservative methods (though he states earlier in his paper that no effective and reliable conservative treatment exists at present) or a limited operation, the patient being subsequently kept under observation. Fibro-adenomatosis cystica between the ages of 20 and 30 should also be an indication for conservative treatment, and amputation of the breast is only indicated in exceptional circumstances. But after the age of 35 or 40 the danger of cancer is so great that amputation should usually be performed.

360 Pyelonephritis in Pregnancy

D. K. ROSE and P. R. ROLLINS (*Journ. Amer. Med. Assoc.*, January 24th, 1931, p. 235) discuss the prevention and treatment of pyelonephritis in pregnancy, recording the conclusions reached after they had undertaken a series of cystometric investigations, of which details are given. They found that the pyelonephritis of infancy might be continued with markedly attenuated organisms throughout life, exacerbations occurring subsequently in consequence of the trauma and urinary retention incidental to pregnancy and labour. During pregnancy urinary retention might be caused by such factors as myomas, pelvic adhesions, cystocele, uterine abnormalities, and changes in the vesical and ureteral walls, while after labour there might ensue a special type of spasticity of the bladder wall. The authors state that the cystometer differentiates two types of neurogenic post-partum urinary retention, one being due to pressure of the child's head in the second stage of labour, and the other being of a reflex nature associated with dilatation and trauma of the outlet. In the first type, bladder drainage will cause a cystitis, but will prevent pyelonephritis, diminish moderate forms of ureteral stasis, and lessen the danger of infection or reinfection of the ureter from the bladder. They add that one useful preventive measure is the termination of the second stage of labour when it has lasted two or three hours, and when the greatest diameter of the head is within the pelvis. The employment of forceps and of morphine-scopolamine analgesia seems to exert no direct influence on urinary retention. The cystometer is an instrument which measures resistance of the bladder wall under constant filling conditions, and differentiates the myogenic and neurogenic factors in retention. The authors define the bladder sensations of "temperature," "slight pressure," "first desire to void," "fullness," "pain,"

and the "severe pain" of over-distension, basing their conclusions on the points of filling and pressure at which the various sensations occur, and their relation to each other.

361 Pregnancy and Labour in the Elderly Primipara

J. K. QUIGLEY (*Amer. Journ. Obstet. and Gynecol.*, February, 1931, p. 235) thinks the risks attending a first pregnancy and labour after the age of 30 have been much overestimated, and he does not consider that there need be any special difference in the obstetrical treatment. He reports a series of 234 private and 70 ward cases which (1) did not show a higher percentage than normal of twin pregnancies—1 to 101; (2) did not produce larger infants than the normal, the average weight being 7½ lb.; (3) did not give a higher incidence of abortions or premature labours; (4) did not disclose more fibromyomas than in multiparae of the same ages; and (5) did not result in a higher foetal mortality than the general average. Dry labours, while being frequent, were shorter than those in which the membranes ruptured earlier. Quigley found, moreover, that the duration of labour was always appreciably shorter in such elderly primparae, but there was a slight increase in the toxaemia of pregnancy. There were more cases of funnel pelves, but only a slight rise in the number of unfavourable presentations and positions. Caesarean section was required rather more often. In the small group of cases of first-stage dystocia, in which long labour does not dilate the cervix, primary inertia seemed to be mainly concerned, and cervical rigidity much less often. The dystocia in the author's series ensued usually after a satisfactory short first stage, a delay in the second stage being caused by inertia generally, but sometimes by a rigid pelvic floor. This explains, he remarks, the frequent resort to low or mid-low forceps extractions, the results as far as foetal mortality or condition of the pelvic floor were concerned being good. Lactation was, however, seldom satisfactory in elderly primiparae.

Pathology

362 Acute Nephritis produced by a Pneumococcal Autolysate

Many investigators have endeavoured to produce nephritis in animals by artificial bacterial infection or by the injection of bacterial products; their results have hitherto been negative. S. S. BLACKMAN, J. H. BROWN, and G. RAKE (*Bull. Johns Hopkins Hosp.*, February, 1931, p. 74) now report the successful production in rabbits of a characteristic acute and subacute nephritis by means of an absolutely sterile autolysate prepared from Type I pneumococcus, and also by means of intradermal infection with virulent strains of pneumococci. The toxin was shown to exert its action on the glomerular capillaries, as was evidenced by the appearance of hyaline and fibrin thrombi, and the presence of blood and fibrin in the tubules; it gave rise to injury and necrosis of the epithelium of the tubules and glomeruli. In certain cases the renal damage was associated with marked oedema of the tissues and with ascites. In man, mild acute and subacute nephritis, often unrecognized clinically, can be demonstrated in 40 to 50 per cent. of patients dying from pneumococcal infections; the renal lesions revealed closely resemble those produced in rabbits by the present authors.

363 Clinical Chemistry of the Skin

E. URBACH (*Münch. med. Woch.*, January 16th, 1931, p. 89) states that the micro-chemical examination of freshly removed skin offers new possibilities for study of its physiology and pathology. The normal content of chlorides, non-protein nitrogen, sugar, uric acid, etc., is markedly different from that of the blood. The water content of the skin is high in infancy and old age, and also in obesity, scleroderma, ichthyosis, and eczema. In the last-mentioned disease the water content is high even in apparently healthy areas of the skin, whereas in inflammatory conditions such as erysipelas normal values are obtained except in the affected part. Pemphigus and dermatitis herpetiformis are characterized by an abnormal retention of chlorides in the skin. In some of the cases the actual chloride value is normal, but it invariably rises to a pathological figure after the intake of chloride. The skin is shown to be an important reservoir for sugar, nitrogen, chlorides, and water. In many cases associated with pruritus an increased non-protein nitrogen was found in the skin, even though there was no nephritis, and in some the itching appeared to be related to the uric acid fraction. Occasionally the symptom was relieved by atophan administration. It is interesting to note, however, that a prolonged protein-free diet leads to an actual increase of uric acid in the skin. Urbach believes that examination of the skin may shed new light on certain metabolic problems which have so far only been studied by chemical investigations of the blood and urine.

364 Infection due to Aberrant Paratyphoid Bacilli

M. MONNEROT-DUMAINE (*Thèse de Paris*, 1930, No. 497) applies the term "aberrant paratyphoid group" to bacilli capable of producing typhoid infections or gastro-enteritis in man, and possessing all the general characters of Schottmüller's paratyphoid B bacillus, but differing from it in their serological properties and in some of their cultural features. A large number of microbic varieties have been defined in this group, including Gaertner's bacillus, *B. aertrycke*, *B. breslau*, the Newport bacillus, the bacilli of hog cholera which are occasionally pathogenic for man—namely, the suipestifer type, the Voldagsen type, and the Kunzendorf type, which correspond to the German group of paratyphoid C bacilli, the paratyphoid C bacillus isolated by Hirschfeld in Serbia, the paratyphoid N bacilli of the G type of Russian authors, the paratyphoid bacilli of the Japanese Sasaki type, and lastly, the very rare strains which are more closely related to paratyphoid A than to paratyphoid B. Hirschfeld's paratyphoid C bacillus is important owing to its bacteriological individuality and its pathogenic role. It gives rise to septicaemic syndromes of the typhoid type, or infections without any localization or visceral forms such as bronchopneumonia, endocarditis, and possibly jaundice and collections of pus. It is probable that aberrant paratyphoid septicaemic infections would be found to be less uncommon if all the paratyphoid bacilli isolated from the blood were submitted to agglutination tests.

365 The Blood Sugar Content in Later Life

F. W. MARSHALL (*Quart. Journ. Med.*, January, 1931, p. 257) records investigations upon the sugar content of the blood in 50 men, ranging in age from 65 to 94. After an examination of the cardio-vascular system, including the blood pressure, and of the respiratory and alimentary systems, the blood sugar was estimated by MacLean's method, and the glucose-tolerance test was performed as follows. No food was allowed after breakfast at 7 a.m. until after the completion of the test, and, following an estimation of the blood sugar at 2 p.m., the urine was tested for sugar and acetone, and 50 grams of powdered glucose in 200–300 c.cm. of water were given. During the following 2½ hours half-hourly estimations of the blood sugar were made, and the urine was tested for sugar and acetone at the end of the first, second, and fourth hours. A positive reaction for acetone never occurred. It was found that five types of glucose-tolerance curves occur in healthy old persons. The "lag" type of curve was found in 25 per cent. of healthy cases; this is probably a higher incidence than in the normal adult. In the group of unhealthy cases the same five types were noted, but their incidence was altered, and the diabetic type preponderated, being found in 50 per cent. The author concludes that the majority of diseases, particularly chronic bronchitis, occurring in old age have a deleterious effect upon sugar tolerance. There did not appear to be any relation between the blood pressure, the blood sugar content, and the renal threshold; the last of these in healthy old age was found to be generally raised, and in the neighbourhood of 0.2 per cent. The presence of a septic focus produced a diminution of sugar tolerance, though dental sepsis exerted but little influence on the curve.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

366 Etiology of Sero-fibrinous Pleurisy

In an endeavour to elucidate the etiology of primary serous pleurisy and to determine if a differential diagnosis can be made between undoubtedly tuberculous exudations and those of uncertain origin, A. LANDAU, J. GLASS, and M. MARKSON (*Ann. de Méd.*, January, 1931, p. 41) have recorded a careful study of 28 cases. Their investigations indicated that the two types were almost indistinguishable, such differences as existed being too slight to be of diagnostic value. In 54 per cent. of the cases the origin was proved to be tuberculous; in 46 per cent. the etiology was uncertain, but in 27 per cent. of these a tuberculous etiology was strongly suspected. The authors agree with the French school that all primary pleurisies are tuberculous. The negative results of guinea-pig inoculations in some cases may be due to bacteriolytic properties of the exudate, or to the occurrence in them probably of an attenuated type of the Koch bacillus. In the cases of secondary pleurisies, of which only 50 per cent. were tuberculous, other etiological factors, such as streptococci and pneumococci and influenza bacilli, were present. The absence of a tuberculous causation in cases of secondary pleurisy must be proved by the negative results of animal inoculations, by the existence of a plain and direct relation between the effusion and another focus of infection such as rheumatism or influenza, and by the eventual discovery of the causal micro-organism.

367 Cerebral Aspergillosis

E. MONIZ and R. LOFF (*Presse Méd.*, February 21st, 1931, p. 273) record a case of cerebral aspergillosis in a woman, aged 44. Three years previously the patient had suffered from an inflammation of the left eye, with great pain in the globe and immediate amaurosis of that eye. When admitted to hospital a grave iridocyclitis was present, associated with mental disturbances and great intellectual torpor. Headache and vomiting were absent. Examination showed a right hemiplegia with involvement of the lower facial nerve branches and slightly of the upper ones. No cerebellar troubles were apparent. A diagnosis of syphilis was entertained, but specific treatment produced no improvement. Death occurred in four days; the necropsy revealed an extensive aspergillosis in the left frontal region, which extended to the centrum ovale and posteriorly into the caudate nucleus and internal capsule. Mycotic infections of the eye have been reported, but the condition is usually limited to the external ocular media. In the present case the fungus had evidently reached the brain through a corneal ulceration. The authors emphasize the possibility of such transmission and the need of immediate appropriate treatment when a diagnosis of ocular aspergillosis is made. They also note the slow evolution of the cerebral condition.

368 Fourth Disease

DRENKHAHN (*Deut. med. Woch.*, February 20th, 1931, p. 319), who records an illustrative case, states that in 1917 an epidemic occurred among the children in Godesberg which was regarded as "fourth disease." On this occasion his patient, a girl aged 8 years, contracted the disease, as did four other members of the family. Thirteen years later, when she was employed as a hospital nurse in charge of infants within the first eight months of life who were not suffering from any infectious disease, she developed similar symptoms—namely, a scarlatiniform rash, with a negative extinction sign, fever, and sore throat. There was no desquamation. She was sent home, where twelve days after the onset of the disease two children showed similar symptoms, except that there was also a branny desquamation. In none of the cases was there any renal involvement.

369 Insulin Oedema

I. H. MARCUS (*Med. Journ. and Record*, January 7th, 1931, p. 12) reports a case of the occurrence of oedema during insulin therapy, in view of the rarity of references in the literature to this complication. In a married woman, aged 32, oedema appeared in the legs on the fifth day after starting insulin injections for diabetes, and spread thence to the thighs ; the eyelids were also affected. The patient gained 19 lb. in weight in less than a fortnight. Her fluid intake had been excessive, though this was not the case as regards mineral salts. Recovery ensued without any restriction of salts being found necessary. Marcus discusses the various etiological explanations which have been put forward, and concludes that the mechanism of its production is unknown. Retention of water by the body during the first days of a course of insulin therapy seems to be frequent, possibly owing to some increase of the hydration capacity of the tissue colloids.

370 Meningococcaemia with Endocarditis

A. M. MASTER (*Journ. Amer. Med. Assoc.*, January 17th, 1931, p. 164), who records three illustrative cases in a man aged 30, a boy aged 11, and a woman aged 48 respectively, states that though the number of cases of meningococcaemia on record is increasing, the disease is still relatively rare. Its similarity to subacute bacterial endocarditis is shown in the embolic phenomena in the skin, kidneys, and spleen, the fungating endocarditis often engrafted on an old rheumatic endocarditis, the septic course, the joint pains without local inflammation, and the positive blood cultures. Although many writers regard endocarditis as a rare complication of meningococcaemia, endocarditis may be present without any clinical evidence, as is shown by Mackarell's case, in which a massive fungating mitral endocarditis was found at the necropsy. All Master's patients recovered, the diagnosis of endocarditis being made by clinical examination and the teleroentgenogram and electrocardiogram.

Surgery

371 Diverticula of the Urinary Bladder

W. E. LOWER (*Surg., Gynecol. and Obstet.*, February 15th, 1931, p. 324), from a series of 151 cases, points out that diverticula of the urinary bladder may exist without causing any symptoms suggestive of their presence. Their most usual site is in the lateral wall near the ureters. They may be single or multiple, arising from some congenital defect which becomes intensified by obstruction to the urinary outlet. While they may occur at any age, over 80 per cent. were detected only after the age of 50. Frequency and difficulty in urination, with a pyuria persisting after repeated irrigations, should lead to this condition being suspected, but the best diagnostic method is by radiographic examination of the bladder from different angles after catheterization, and refilling with a solution of sodium iodide. Apart from prostatic conditions, the commonest complications are vesical infection, calculi, and tumours. It is generally agreed that complete excision is the only satisfactory treatment. To avoid recurrence any obstruction likely to have been a causative factor should also be removed. Under spinal anaesthesia the bladder is explored through a suprapubic incision; the diverticula are located, and the mode of procedure is determined. By converting the collapsed diverticulum into a semi-solid mass by packing it with gauze tape from within the bladder it can be approached from outside the bladder, and its attachment be severed and the bladder opening closed. When the ureter is involved it may be necessary to transplant it, retaining its physiological function as far as possible. The prognosis is good if a

radical operation is performed early, and before the renal impairment has become marked. Such an operation is the method of choice because it affords greater relief than can be obtained by palliative measures.

372 Minimal Exploratory Laparotomy

J. SOUZA MENDES (*Rev. Sud-Amér. de Méd. et de Chir.*, January, 1931, p. 45) advocates a method consisting in a direct inspection of the peritoneal cavity through an incision not more than 2 cm. in length, with the aid of a Killian's nasal speculum and a head-lamp. A long pair of Hartmann's forceps is employed to push aside coils of intestine which impede a view of the region inspected. It is claimed that this procedure can be conducted with the aid of novocain anaesthesia alone. The method is recommended in particular for the following conditions: (1) in cases of abdominal contusion where rupture of gut is suspected; (2) in perforating wounds of the abdominal wall, the wound itself providing an opening for inspection; (3) where it is desirable to make a certain decision about the site and extent of tumours before a major operation, and sometimes for the removal of biopsy specimens, or of fluid from cystic tumours, when transabdominal puncture is difficult or dangerous; (4) in cases of chronic peritonitis, to facilitate direct inspection of characteristic tuberculous or neoplastic lesions; and (5) in certain cases where direct inspection of the stomach, duodenum, or gall-bladder is a valuable preliminary to ordinary laparotomy.

373 Pseudarthroses of the Neck of the Femur

J. LEVEUF (*Presse Méd.*, February 11th, 1931, p. 204) refers to Delbet's work during the last twenty years on fractures of the neck of the femur; transcervical fractures, unlike the cervico-trochanteric variety, seldom unite spontaneously, and it is with the first of these that the present article is concerned. In a recent thesis the percentage of good results under present-day treatment was given as 37.5 per cent., a figure which contrasts unfavourably with the 95 per cent. of Leveuf, who judges by the functional result in reference to walking. Inquiring into the cause of this discrepancy, he emphasizes the importance of realizing that in transcervical fractures there is always some destruction of the remains of the femoral neck. So long as there is apposition between the trochanter with the remains of the neck and the head, correct anatomical realignment of the parts is not essential for a good functional result; a simple pegging operation with a fibular graft as practised by Delbet ensures good bony union, the graft acting simply as an osteogenetic factor. In recent years surgeons have attempted to overcorrect the displacement by extension; as a result the graft has had considerable strain imposed on it, and has consequently failed to induce union in a large percentage of cases. Leveuf holds that the original technique of Delbet (which does not involve arthrotomy) gives much the best prospect of good functional result, and that the more severe operations of arthrotomy and ablation of the head of the femur are not justified as procedures of election.

374 Staphylococcal Septicaemia

B. COHN (*Med. Klinik*, February 13th, 1931, p. 243), who records an illustrative case, states that septicaemia due to haemolytic staphylococci is a relatively rare but prognostically very unfavourable disease; only one of 24 patients treated by Jochmann recovered. Almost nine-tenths of Lenhartz's cases were fatal, and of Soper's 40 patients 29 died. Otten lost 44 of his 55 cases, a mortality of 80 per cent. The staphylococcal differs from other forms of septicaemia by its well-marked tendency to the formation of metastases, especially in the cases of boils of the lip, also by giving rise to paranephritic abscesses, pulmonary abscesses, and occasionally pulmonary gangrene. Cohn's patient was a man, aged 24, who developed staphylococcal septicaemia secondary to a boil on the upper lip. Little effect resulted from the injection of antistaphylococcal serum, and empyema followed by septic myocarditis ensued. Gradual improvement, however, took place, and finally the patient completely recovered.

Therapeutics

375 Strychnine in Alcoholic Delirium

P. PAGNIEZ and P. CHATON (*Presse Méd.*, February 28th, 1931, p. 297) believe that strychnine as a remedy for alcoholic delirium has undeservedly fallen into disuse. This method of treatment was introduced by Luton over fifty years ago, and although it is still sometimes used in delirium tremens, its value in alcoholism in general has been largely neglected. The authors believe that strychnine is valuable at all stages of the malady, and their procedure is to inject its sulphate in doses of 2 mg. every three hours, or in severe cases every two hours; amounts of 10 to 16 mg. are thus given every 24 hours. Small frequent doses are indicated, since the drug is eliminated rapidly from the body. Fluids are given freely. If restlessness is not excessive the patient is left at liberty in his room, which contains only a mattress. When there is great violence, or a medical or surgical complication such as pneumonia, the patient is restrained, and no ill effects have resulted from tying him to the bed. Confusion, hallucinations, tremulousness, and sweating are all generally relieved within twenty-four or forty-eight hours; when this stage is reached the amount of strychnine is reduced to 10 and 8 mg. daily, and is gradually further diminished. No dangers have been encountered in this treatment, and good results have been obtained in 42 serious cases, some being complicated by fever, pneumonia, or fracture. No such beneficial effect is obtained in non-alcoholic delirium, nor has the drug any harmful effect in these patients. The specific value of strychnine in alcoholism is attributed by the authors to a pharmacological antagonism, and they quote the work of Vulpian, who showed that dogs to which alcohol had been administered were protected from the harmful effect of normally lethal doses of strychnine given by the mouth.

376 Mercurialism following the Application of Mercurochrome

D. E. H. CLEVELAND (*Canadian Med. Assoc. Journ.*, February, 1931, p. 272) reports a case of mercurialism in an infant which followed the application of a 4 per cent. solution of mercurochrome 220 soluble. Six days after birth groups of vesicles developed around the ears and neck, and the application of mercurochrome was ordered, associated with ultra-violet irradiation. After rupture of the vesicles slight suppuration ensued, but healing followed. Subsequently more vesicles appeared on the chest, one arm, and one leg, and a transient cyanotic swelling of the right thumb and index finger developed, with a vivid red rash over the whole body. There was a definite blueness of the extremities, and the child held the neck and body in a hyperextended position. There was much frothy saliva, and the mucous membrane of the mouth was reddened. There was a trace of albumin in the urine, but no casts or red cells; the weight decreased a little. The mercurial applications and irradiation were stopped, and the infant steadily improved. Cleveland criticizes the use of irradiation in dermatology as a routine procedure, but thinks that in the present instance it was in no way to blame. He considers this a definite case of general poisoning following the external application of mercury, which indicates that there is some risk attending the employment of mercurochrome in this way, a point to be remembered in prescribing it for such a common disorder as impetigo contagiosa.

377 Treatment of Pernicious Anaemia

K. GUTZEIT and J. HERRMANN (*Münch. med. Woch.*, February 13th, 1931, p. 266) have administered daily by the mouth to three patients with pernicious anaemia 75 to 100 c.mm. of gastric juice obtained from dogs after it had been allowed to act on 250 grams of muscle for one hour at 37° C. They obtained a marked reticulocyte reaction with subsequent rise in the red cell count and the haemoglobin percentage after four to eight days. A similar

reaction was obtained by giving a special pepsin preparation, but only after this had been allowed to act on muscle for one hour at 37° C. The authors assert that the ferment of ventriculin does not contain the anti-anaemia substance, and that the powdered extract from the membrane of the fundus always gave a quicker and more certain reaction to reticulocytes and red cells than the extract obtained from the pyloric mucous membrane. Powdered extract obtained from the small intestine of the pig was tried in one case of pernicious anaemia without effect.

378 Tryparsamide in Neurosyphilis

J. SPITZ (*Urol. and Cut. Rev.*, February, 1931, p. 122), who records two illustrative cases of its use in men, aged 36 and 43 respectively, states that tryparsamide, the sodium salt of N-phenyl-glycine-amido-*p*-arsonic acid which was discovered by Jacobs and Heidelberger in 1915, has an affinity for the central nervous system and exerts a general tonic effect. It is, however, of little value in the treatment of syphilitic conditions other than those of the central nervous system, but it is most effective in the early stages of tabes and general paralysis. Its toxicity is slight, and when toxic sequels such as arsenical dermatitis occur they soon clear up. The greatest danger is optic neuritis. A careful ophthalmoscopic examination should therefore be made before beginning the use of the drug, and a close watch should be kept for the earliest manifestation of retinitis during treatment.

Laryngology and Otology

379 Laryngeal Complication of Quinsy

G. MARTUSCELLI and M. ALEMI (*Arch. Ital. di Otol., Rinol. e Laryngol.*, January, 1931, p. 1) record a personal case with a review of the literature dealing with involvement of the larynx secondary to quinsy. Their patient was a man, aged 34, who on the day following evacuation of a peritonsillar abscess developed difficulty in breathing. Laryngoscopic examination revealed oedema of the vestibule of the larynx, especially of the arytenoids and aryepiglottidean folds. Throat swabs showed a mixed growth of staphylococci and streptococci. Ice was applied externally and the throat was sprayed with carbolic acid. As the symptoms became worse the next day, free incisions were made in the affected parts with Tobold's knife, and intragluteal injections of antipyogenic stomosine were given ; in four days the symptoms subsided, and in about a week the patient made a complete recovery. The authors have collected four other cases of quinsy with laryngeal complications from the literature, of which two were fatal and one recovered after tracheotomy ; the issue in the fourth instance is not recorded.

380 Involvement of the Acoustic Nerve in Encephalitis

E. WODAK (*Rev. de Laryngol., d'Otol. et de Rhinol.*, December 15th, 1930, p. 681) examined all the cases of epidemic encephalitis admitted to the German Neurological Clinic at Prague from 1925 to 1927 and found that almost every patient had had at some period of his illness involvement of the eighth cranial nerve. The vestibular division was most commonly affected, and a few cases of both divisions being attacked were seen, but in no instance was involvement of the cochlear division alone observed. The affection may be either a hyper-excitability or a hypo-excitability, and may involve one or both sides. The patient complains of vertigo, nausea, and vomiting, and, if both divisions are involved, of deafness and tinnitus. Spontaneous rotary nystagmus is observed. The author was also impressed by the differences noted in the responses to the caloric and rotatory tests in the same patient. Hyper-excitability to one stimulus may coexist with hypo-excitability to the other. Differences between the tonic reflexes and the nystagmus were also noticed in some cases during the rotation tests. A number of cases were examined which presented the post-encephalitic condition of ocular muscle spasm, pseudo-Parkinsonian retropulsion and propulsion, and spasmodic torticollis. It was found that all these signs were altered or abolished if the vestibular nerve was stimulated by either hot or cold caloric tests, and the author claims that these well-known post-encephalitic phenomena are always due to disordered labyrinthine reflexes. Cases have been seen which presented no other symptoms than the vestibular. Labyrinthine symptoms often persist in patients who have made an otherwise complete recovery. They complain of sudden giddiness, often associated with change of position of the head, and simulating otolithic disorder. There are often long periods of freedom from symptoms, but each relapse is more severe than its predecessor.

381 Intrinsic Carcinoma of the Larynx

W. O. JOHNSON (*Amer. Journ. Surg.*, January, 1931, p. 16) emphasizes the importance of early diagnosis and treatment of carcinoma of the larynx. The condition occurs most often after the 30th year in men, and constitutes 98 per cent. of the malignant lesions of the larynx; of these 96 per cent. are of the squamous-cell type, and are of Group 4 malignancy. The initial symptom in 90 per cent. of cases of carcinoma of the larynx is a persistent hoarseness, with pain, dryness, and dysphagia as later symptoms. Direct laryngoscopy is of value where the diagnosis is in doubt. Surgical treatment should be undertaken as soon as possible, before the vocal cord has become immobile through the penetration of the subadjacent muscles by the neoplasm. Immobility is usually dependent upon infiltration posteriorly into the base of the arytenoids, with extension of the growth across the anterior commissure, posteriorly to the ventricular band on the epiglottis, and downwards to the cricothyroid membrane. When this extension is present the lymphatic channels are involved, and metastasis becomes probable, with a poor prognosis. Laryngo-fissure should be performed only in very incipient cases in the anterior quarter of the cord, where much normal tissue can be removed with the growth. For the great majority of cases laryngectomy is the operation of choice. Local anaesthesia by novocain block and infiltration has been found to be successful, and general anaesthesia should be avoided whenever possible. Careful pre-operative and post-operative treatment is of the greatest importance. The mortality after laryngectomy was only 3 per cent.; it was found that 70 per cent. of patients suffering from intrinsic carcinoma of the larynx could be cured by this means, and were able to return to their normal life and occupation.

Obstetrics and Gynaecology

382 The Diagnosis of Pregnancy

According to J. K. COUCH (*Med. Journ. of Australia*, January 24th, 1931, p. 99) one of the most reliable signs of pregnancy is that discovered by Jacquemin in 1836, which consists in the blue staining of the vulva, usually most marked around the meatus, in the vestibule, and extending up the anterior vaginal wall. It commences about a month after the beginning of pregnancy, and becomes more marked with its advance. It disappears if abortion ensues or the ovum dies. Couch has also found a violet discoloration of the cervix, most marked at the os and gradually fading upwards. These colour changes must be observed by daylight; they are said to be absent in other forms of uterine enlargement. Other of the more trustworthy indications of pregnancy are amenorrhoea, confirmed by increase in the size of the uterus to a corresponding degree, marked anteflexion, softening of the cervix and of the uterine fundus, especially anteriorly, and breast signs in the primipara, though not in the multipara. Couch believes that the most useful diagnostic evidence of an early tubal mole is the cessation of menstruation at the proper time, and then its reappearance for a couple of weeks, though not profusely. He thinks that many early ectopic pregnancies are undiscovered, the patients recovering without an operation

being indicated or required. Although the uterus enlarges in a case of ectopic gestation, it never exceeds the size of a three months' pregnancy, even when the ovum is at full term.

383 Lymphocytosis associated with Ovarian New Growth

H. M. WINANS (*Amer. Journ. Med. Sci.*, February, 1931, p. 251) reports a case of leukaemia developing apparently in association with the appearance of a pseudo-mucinous cyst of the right ovary and a papillary adenoma of the left ovary. A married woman, aged 29, was admitted to hospital with a normal blood picture and a respiratory infection with Vincent's organisms which yielded promptly to treatment. A cyst of the right ovary was discovered by a radiographical examination, and at the operation a papillary ovarian adenoma on the other side was found and removed also. Abdominal tenderness had caused attention to be directed to this part of the body, and simultaneously with its appearance there had been a leucocytosis of over 18,000 per c.mm., with a lymphocyte percentage of 85. Following the operation the leukaemic picture gradually diminished until the blood count returned to the normal. Winans is satisfied that the original infection with Vincent's organisms was not the cause of the lymphocytosis; he thinks it possible that there might have been some degree of peritoneal irritation associated with the ovarian growths, and that this affected the blood. Alternatively, the growths themselves might have been responsible, but no evidence in support of this view was obtained.

384 Salpingostomy for Sterility

According to W. T. MATWEJEWA (*Zentralbl. f. Gynäk.*, January 31st, 1931, p. 302) salpingostomy is capable of restoring tubal function in a not inconsiderable number of cases, including some in which the morbid anatomical conditions are long-standing and extensive. At the operation, which must be deferred until all acute inflammation has subsided, it is essential to perform ventrofixation simultaneously. The combined procedure, employed at the author's clinic on forty-five occasions during the last two years, and sometimes preceded by partial resection of the tube, has so far been followed by five pregnancies, two after sterile marriages lasting nine and five years respectively. The operation should be followed by periodical insufflation of the tubes.

Pathology

385 Etiology of Blood Transfusion Reactions

J. BORDLEY (*Arch. Int. Med.*, February, 1931, p. 288) describes a delayed or prolonged reaction following blood transfusions in 17 cases, which he believes was due to the injection of incompatible blood. The signs and symptoms develop from severe functional renal damage. Most of the patients were relatively young adults. Anaemia was present in all, but this and the patients' general condition had little influence on the occurrence of the reaction or its outcome. The reaction presents the following characteristic features. Immediately after transfusion a sharp febrile reaction occurs, followed frequently by haemoglobinuria, and invariably by suppression of urine. For several days afterwards there is symptomatic improvement, but continued oliguria. After this interval the delayed reaction develops rapidly, commencing with agitation or drowsiness, which is replaced by evident uraemia. Convulsions and coma may supervene. The outcome is frequently fatal; 11 of the 17 patients died. Recovery is associated with diuresis; death occurs in uraemia. At the necropsy the kidneys are swollen; the tubular epithelial cells contain droplets of pigment, and show advanced degenerative changes; the tubular lumina are filled with various cells, blood pigment, and debris. Small hepatic necroses are generally found. Four possible explanations of the mechanism by which incompatible blood damages the kidneys are discussed—namely: (1) by mechanical blockage of their tubules; (2) by a local reaction of an anaphylactic nature; (3) a metabolic disturbance; and (4) damage of the renal substance by toxic substances set free in the blood. The daily output of urine greatly aids in prognosis; haemoglobinuria is of far less prognostic significance than the amount of urinary excretion. The delayed reaction is not rare. In addition to the detailed reports of the present cases, brief mention is made of several others which have been recorded.

386 The Titre of Isoagglutinating Serums

P. GIOVANNI and C. ANGELERI (*Rif. Med.*, January 5th, 1931, p. 8) consider that for the determining of blood groups it is essential to use serums of high activity, and describe a method of estimating the titre of isoagglutinating serums. They also recommend the determination of the panagglutinating content. Small amounts (4 to 5 c.cm.) of blood are removed from a series of persons of Groups II and III; preliminary hanging-drop tests are made with them. The titres of the positive serums are estimated as follows. With an ordinary red-cell pipette, serum is drawn up to the mark ½, blood cells of suitable group to mark 1, and sodium citrate to mark 101, the serum being diluted 100 times. After mixing, the contents of the pipette are blown out into a haemolysin tube, kept at 37° C. for an hour, and then examined microscopically in hanging drops. This procedure is repeated with the same serum, and in the case of several individuals of the same group. The positive serums indicate that a titre above 1 in 100 is reliable for determining blood groups. To estimate the panagglutinin content a white-cell pipette is used. The serum to be tested is drawn up to mark 1, red cells (from the same group or from Group I) to mark 3, and sodium citrate to mark 11, the serum being diluted 1 in 10; the number of red cells is not excessive, or likely to mask the presence of panagglutinin. The contents of the pipette are blown into a haemolysin tube, placed on ice for an hour, and then tested microscopically in hanging drops. Safety is ensured when no trace of agglutination is observed.

387 Seasonal Variations in Resistance to Disease

F. MAIGNON (*C. R. Soc. de Biologie*, February 20th, 1931, p. 445), discussing the increased susceptibility of animals at different times of the year to the action of certain viruses, toxins, and chemical substances, draws attention to the work that he has carried out on the seasonal alteration in metabolic activity. He finds that, in the dog, muscular glycogenesis reaches its first maximum in the spring, and a second less marked maximum in the autumn; in the summer and winter it is at a minimum. Similar observations have been made on the carp and the guinea-pig. The author has also found that in the dog and the guinea-pig the activity of respiratory combustion, or the oxidation of organic compounds, displays the same seasonal variations, being at a maximum in the spring and autumn, even in animals kept at a uniform temperature and fed on a uniform diet. It is noteworthy that these maxima coincide with the periods of activity of the genital glands. That these glands have an effect on nutrition is indicated by the fact that the titre of glycogen in the muscles is always higher in males than in females; castration of the male lowers the titre to that of the female, while the injection of testicular extract into the normal but not the castrated male raises the glycogen titre. Maignon has further observed that white rats fed exclusively on ovalbumin and mineral salts survive for four to six weeks in the summer and winter, while they die in three to six days in the months of May and November. The addition of vitamins to the diet does not modify this result. He concludes, therefore, that the seasons influence muscular glycogenesis, respiratory combustion, and nutrition as a whole, altogether apart from any change in temperature; that in spring and autumn nutritional activity reaches its maximum; and that at these times the susceptibility to infections and intoxications is increased.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

388 Myopathia Infraspinata

G. WILTRUP (*Ugeskrift for Laeger*, February 12th, 1931, p. 157) has in the course of several years examined about 600 patients suffering from a condition he calls "myopathia infraspinata." Most of his patients were males between the ages of 30 and 50, who, while at work, felt pain in the shoulder, most frequently the right shoulder. This pain began quite suddenly, was often intense, and sometimes radiated out to the fingers. Rest and bandaging had, as a rule, little effect, and the pain was often worse at night. The pain kept the joint immobilized, often at a higher level than the other shoulder. The upper arm was held to the side, active movements about the joint could not be carried out, and passive movements were at first hindered by the muscular spasm, which yielded somewhat to a few minutes' massage. The range of movement about the joint was then so wide that disease of the joint itself could be eliminated. Normal sensation and reflexes were retained. On palpation, tenderness was demonstrable in the infraspinatus muscle, most frequently in its upper median portion. The pain evoked by this pressure resembled the spontaneous pain of which the patient had complained, and often radiated to the fingers. This condition, which nearly always clears up with massage, is in the author's opinion due to muscular hyperfunction. The diagnosis is easily made, and the examination is best conducted while the patient lies on his abdomen with his hands under his forehead or hanging down by his sides.

389 Estimation of the Pirquet Reaction

J. LEIKVAM (*Norsk Mag. f. Laegevid.*,. March, 1931, p. 251) made comparative observations on 2,500 Pirquet reactions at the end of twenty-four, forty-eight, and seventy-two hours, with the following results. A positive reaction showed a marked tendency to remain the same or to increase up to the third day, whereas the non-specific reaction disappeared in the course of the second or third day. Of 160 papules with a diameter of 1 to 5 mm. and more, twenty-four hours after injection of the tuberculin, 122 had already disappeared by the third day. As only about 4 per cent. of the reactions which are negative seventy-two hours after the first Pirquet test become positive after the test has been repeated, Leikvam concludes that these transient reactions, which contribute 72 per cent. of the papules appearing on the first day, are false, non-specific reactions. He considers that Frölich's estimate of 84 per cent. positive Pirquet reactions among school children in the lowest classes should be reduced to 24 per cent., since Frölich probably regarded the non-specific reactions as positive. Late reactions first appearing on the second or third day, or cases which require repetition of the test before they become positive, are frequent at all ages.

390 Control of Diphtheria in Institutions

C. JENSEN (*Deut. med. Woch.*, February 20th, 1931, p. 324) records the results of immunization against diphtheria with Ramon's anatoxin in a large children's home, and in an institution for the mentally deficient, during a period of two years. The results were regarded as favourable, on the following grounds. (1) In the children's home, where all the Schick-positive inmates had been previously immunized, four carriers were allowed to mix freely with the others for a whole month without any case of diphtheria arising. (2) In an isolated department of the home two cases of diphtheria occurred nine months after the immunization had been carried out. The department at that time contained 58 immunized and 6 non-immunized children. The source of infection was found to be two immunized children with suppurative otitis media who had diphtheria bacilli in the discharge. (3) Both of these chronic carriers were allowed to mix freely with the 60 children in another department who had been immunized, but no more cases of diphtheria occurred. As the result of clinical experience and control Schick tests, the author concludes that the duration of immunity is more than two years, and probably considerably more. In children below the age of 7 the injections of anatoxin caused little or no reaction.

391 Measles Meningitis

M. LIORET (*Thèse de Paris*, 1930, No. 484) records 10 cases, two of which are original, in patients aged from 3 to 40, in whom measles was complicated by meningitis. His conclusions are as follows. Apart from local causes, especially otitis, meningitis is a rare complication of measles. It is most likely to occur when the eruption is beginning to fade, and is accompanied by rise of temperature and constitutional disturbance, but without signs of severe involvement of the nervous system. The cerebro-spinal fluid shows a mononuclear reaction; the lymphocytes often predominate, suggesting the presence of tuberculous meningitis, although all the laboratory investigations are negative. This form of measles meningitis disappears rapidly and has no sequels. It resembles the meningitis found in numerous infectious diseases, such as scarlet fever, mumps, and herpes, in its mode of onset, and clinical and laboratory signs. The etiology is uncertain, but it is reasonable to attribute the condition to the measles virus.

Surgery

392 Cholecystectomy without Drainage

G. COTTE and H. ROLAND (*Rev. de Chir.*, January, 1931, p. 1) discuss the advantages of cholecystectomy without drainage in certain cases. It is only advisable when there are no adhesions between the gall-bladder and colon or duodenum, when haemorrhage is slight, and when perivesicular suppuration is not present. In relatively simple cases, and those in which it has been possible to preserve sufficient peritoneal covering to peritonize the bed of the gall-bladder and to bury the stump of the cystic duct, ideal cholecystectomy is the operation of choice. This obviates the employment of any form of drain, the removal of which may be very painful and may break down adhesions, thus causing peritoneal or general infection. A case is mentioned in which secondary haemorrhage of the cystic artery occurred when the gauze drain was removed, and caused the death of the patient. Convalescence after an ideal cholecystectomy is also shortened, and post-operative adhesions and hernia are less likely to occur. Twenty-two cases of cholecystectomy were so treated in the two years under review, and in every case a good and speedy recovery was made. In eleven cases the operation was for gall-stones, in the remaining eleven for pain in the gall-bladder region and chronic cholecystitis with no stone formation. Operation was in most cases carried out under spinal anaesthesia through a Sprengel's transverse incision.

393 Early Signs of Cancer of the Tongue

W. F. MACFEE (*Annals of Surgery*, February, 1931, p. 481) finds that cancer of the tongue is in 20 per cent. of the cases anatomically situated so as to escape early detection. Moreover, it is frequently symptomless, or associated with indirect and consequently misleading symptoms; thus abdominal pain may result from the referring of the pain to other areas of the vagal distribution. One of the first and most consistent symptoms of lingual cancer is, he thinks, pain in or about the ear, when the growth is situated in the posterior half of the tongue. There may also be

some difficulty in swallowing and in dislodging particles of food from the teeth; this is probably due to the replacement of muscle by tumour tissue, and to the involvement of the motor nerves. A queer tickling sensation in the tongue has been reported, probably indicating sensory nerve disturbance. Later symptoms include salivation, pain in the tongue itself, and fetor, but when these appear the condition has usually passed the stage when an operation can be of any use. Other possibly early symptoms noted by MacFee are: deviation of the tongue to the side of the lesion; a slight dimpling, furrowing, flattening, or other evidence of the surface mucous membrane; a defect in speech; a minute ulcer at the most superficial part of an infiltrating cancer; an area of induration; and enlarged lymphatic glands in the neck—a later sign, but even then too often attributed to causes other than lingual cancer. The author adds that as soon as an ulcerated or indurated area is discovered in the tongue a correct diagnosis must be made rapidly, or the condition may become hopeless.

394 Surgical Treatment of Graves's Disease

A. TROELL (*Nord. Med. Tidskrift*, February, 1931, p. 129) traces the marked decline in the operation mortality of Graves's disease in the past decade to careful preparatory treatment modified according to individual needs. The duration of such preparatory treatment must depend on the degree of toxicity in each case; in 9 of his cases it lasted from six weeks to five months. Of 458 thyrotoxicosis patients operated on between 1919 and 1930, 22, or 4.8 per cent., died in connexion with the operation. In the earlier part of this period—from 1919 to 1924—there were 104 patients, 10 of whom (9.6 per cent.) died in connexion with the operation. In the latter part of this period—from 1925 to 1930—there were 354 patients, 12 of whom (only 3.3 per cent.) died in connexion with the operation. The best operative results were obtained in 1929 with a series of 160 cases and only three deaths. As for the late results, the fate of 10 of the 246 patients operated on between 1919 and the end of 1929 could not be ascertained. Complete recovery and fitness for work (with persistent exophthalmos in some cases) was achieved in 51 per cent., and complete fitness for work, without removal of all the symptoms, in 39 per cent. In 3 per cent. the patients were better, but not fully fit for work; in 1 per cent. they were no better or worse; and in 6 per cent. they had relapsed. In view of the danger of hypothyroidism and parathyroid disturbances following extensive bilateral resection, the author has of late been less radical in his operations, preferring to leave a piece of the gland, about as large as a walnut, on each side of the neck.

395 Ankle Fractures with Backward Dislocation

M. LANGE (*Münch. med. Woch.*, February 27th, 1931, p. 365) states that the treatment of fracture of the ankle is made difficult by the fact that the gastrocnemius, pulling at an advantage over its antagonists, tends to increase the backward displacement of the foot and to prevent the maintenance of the correct position after reduction. By flexion of the knee the gastrocnemius is shortened and its power is decreased. Fractures of this nature should be reduced and put into plaster with the patient in the prone position, and the knee and foot both flexed to a right angle. In order to maintain the position the plaster should extend up to the middle of the thigh. This technique has been recommended by several writers on orthopaedics, but is, in the author's opinion, still insufficiently practised.

396 Traumatic Separation of the Symphysis Pubis

J. W. SEVER (*New England Journ. of Med.*, February 19th, 1931, p. 355) cites several cases of traumatic separation of the symphysis pubis; in many of these suturing or wiring of the symphysis was performed. With Wishner and Mayer, and with Timm, the author believes that conservative measures should be generally followed, and that an operation is indicated only in unusual cases where other methods fail. Wishner and Mayer consider that functional cure is possible by gradual lateral compression of the pelvic bones, which restores them to the approximately normal positions. Three cases, in which severe injuries were present without intrapelvic soft part complications, are recorded by Sever; these show that functional recovery may occur despite considerable separation at the symphysis, even if perfect anatomical reposition is not obtained. A heavy swathe, kept tight, is usually sufficient support to the pelvis; this procedure of Wishner and Mayer to ensure constant pressure is thought by Sever to be useful, and could be employed.

Therapeutics

397 Treatment of Malaria

J. A. SINTON (*Indian Journ. of Med. Research*, January, 1931, p. 831) discusses the effects of various quinine dosages and the duration of treatment in malaria. By prolonging treatment the permanent cure rate can be increased, but the increase is not directly proportional to the duration of treatment or to the total amount of quinine given. Moreover, better effects and more permanent cure follow the administration of the larger doses of quinine; the continued use of large doses over long periods may, however, have harmful effects, and may even prolong the disease. The optimum daily dose has been found to be 30 grains. Such a dosage for a short period (one week) should cure at least 70 per cent. of fresh malarial infections, if care is taken that the dose is retained and absorbed. In further papers (ibid., pp. 845 and 855) on the influence on the duration of the disease exerted by special parasite species, and the relationship of season to the cure rate, Sinton considers that there is no certain proof of the existence of variations in the strain or virulence of malarial parasites other than *P. vivax*. It seems highly probable that the relapse rates may be correlated to atmospheric temperature, and especially to the association of a high relative humidity with a high atmospheric temperature.

398 Renal Complications of Bismuth Therapy

L. BORY (*Paris Méd.*, March 7th, 1931, p. 221) says that apart from experimental or accidental intoxications nephritis is not actually caused by bismuth, and prefers to speak of "renal complications during bismuth treatment." The functional renal troubles thus described are polyuria, albuminuria, and sedimentary nephrosis. Polyuria is a natural consequence of bismuth treatment, and has no serious significance; oliguria occasionally follows, however, and must be regarded as a sign of kidney trouble. Albuminuria is the first sign of cell fatigue; epithelial desquamation ensues later, and this calls for interruption of treatment. The author adds the practical hint that in successive periods of treatment the basal drug should be varied; the prolonged employment of bismuth fatigues the kidneys, and a temporary change to a course of arsenic is suggested in order to give them a rest.

399 Treatment of Diphtheria Carriers

R. WAHL (*Deut. med. Woch.*, February 13th, 1931, p. 276) records the results of *x*-ray treatment of a number of diphtheria carriers, many of whom were old and resistant cases. Three positive swabs had been obtained from all the cases before treatment, and, according to the localization of the bacteria, the nose or throat was *x*-rayed, the initial dose being 30 per cent. of a skin erythema dose, followed later by applications of 10 per cent. The tonsil was treated by directing the rays through the skin of the neck, in the region of the angle of the jaw. In all, 136 cases were treated (1 streptococcal, 2 meningococcal, and the rest diphtheria); 105 were negative after the first treatment, 28 after the second, and 2 after the third. Thus all patients except one were cured by three applications or less. The interval between the applications was about a week, swabs being taken about five or six days after each, since it was found that swabs taken directly

after treatment are still positive. This fact, and the observation of others that cultures of diphtheria bacilli cannot be sterilized by the direct application of *x* rays, suggests that the results of treatment are due to an effect on the tissues, and not on the organisms themselves.

400 Local Treatment of Leprosy with Chaulmoogra Oil

T. J. DIMITRY (*Amer. Journ. Trop. Med.*, January, 1931, p. 65) has been successfully treating the eyes and nasal cavities in leprosy with instillations of chaulmoogra oil, either pure or diluted with olive oil. The greatest improvement followed the use of the oil, either pure or diluted, by means of atomization into the nasal cavities. The author is now trying the pure ethyl ester "chaulmestrol," and finds it less painful than the pure oil, though its administration is followed by a burning sensation—never very great—which lasts about half an hour. Dimitry emphasizes the importance of carefully investigating the nasal passages and sinuses in leprosy on the ground that these cavities harbour the cause of the repeated attacks of inflammation in the eyes, and of the persistent nature of the disease generally in the body. Atomization of chaulmoogra oil or of its derivatives can well be combined with the oral or hypodermic method of administration now in general use.

Dermatology

401 Parakeratoses of the Ends of the Fingers

R. SABOURAUD (*Ann. de Derm. et de Syph.*, February, 1931, p. 206) describes a parakeratosis of the ends of the fingers; of slow and recurring evolution, it is streptococcal in origin, and supervenes after a whitlow. This lesion, formerly confused with the eczemas, is often mistaken for a mycosis, which it much resembles. The two conditions may be differentiated by the following points. A parakeratosis has an antecedent history of whitlow, and is much more frequent on the fingers than on the toes. The centre of it is the end of the finger and edge of the nail, and it usually starts in the groove under the free border of the nail. Mycoses, common on the toes, may be recognized by a subungual yellow streak which, commencing at the free border of the nail, runs vertically towards the matrix. Parakeratoses may become secondarily infected with staphylococci, and hence give mixed cultural growths. The primary treatment of both conditions is a daily brisk friction with 1 per cent. iodized alcohol; an ointment should then be applied. Mycoses yield readily to a benzoic, salicylic, or chrysophanic acid ointment. Parakeratoses heal much better with an ointment of 1 in 30 to 1 in 10 (or even stronger) coal tar. To facilitate removal of the black discoloration caused by the latter, the fingers should be cleansed with a greasy substance before soap and water is used.

402 Cutaneous Calcinosis

E. R. MALONEY and D. BLOOM (*Arch. Derm. and Syph.*, February, 1931, p. 245) report a case of cutaneous calcinosis, a disease characterized by the presence of calcareous tumours and plaques in the skin and subcutaneous tissue. Local and general forms exist, the first including calcification in tumours, and being a purely local disease not dependent on any general disturbances. The second form, known as metastatic calcinosis, may be due to the presence in the blood of excessive amounts of calcium, resulting from bone destruction through osteomyelitis, caries, or lymphatic leukaemia. The cutaneous tumours or plaques vary in size and consistency; they eventually perforate the skin, and discharge a creamy mass containing calcium phosphate with some calcium carbonate. In most cases the blood contains only the normal amount of calcium, but in the metastatic cases an excess is usual. The authors' patient was a boy, aged 14, in whom there was a history of preceding throat infection, severe nephritis, and signs of endocrine disturbance. Multiple tumours were present in the skin and subcutaneous tissue of the hands, elbows, knees, right buttock, and behind the right ear. The patient had a prominent jaw and nose, a senile facial expression, a funnel-shaped chest, the female type of pubic hair growth, small testes, thin arm muscles, and a large lipoma beneath the left scapula. His intelligence was normal. *X*-ray examination of the chest revealed hilar shadows in both lungs, with a number of calcified glands and areas of infiltration in the lower lobes. This case belonged to the group of metabolic general calcinosis, and the authors think that the preceding nephritis with confinement to bed for many weeks may have so disturbed the physicochemical balance and solubility of the calcium in the blood as to have produced the condition.

403 An Endocrine Factor in Acne

B. BLOCH (*Brit. Journ. of Derm. and Syph.*, February, 1931, p. 61) holds the view that acne in its first phase is a consequence of the physiological functioning of the sexual glands, analogous to that which is generally assumed for the development of the normal secondary sexual features, such as the formation of terminal hair. Acne, and particularly its basis the comedo, appears at a determined age, and is so widespread as to be regarded inevitably as a hormonal disease of the organism at the time of puberty. Statistical evidence is given in support of these views, based on the examination of 4,191 children in Zurich. Acne was found to attain its maximum incidence at the age of 17 in girls and at 18 in boys, the gravest cases beginning at about the age of 10 or 11, and being more serious in boys than in girls. Other supplementary evidence of a similar purport is cited.

404 Gold Pigmentation of the Skin

L. NOVÉ-JOSSERAND, GATÉ, CHARPY, JOSSERAND, and P. CUILLERET (*Bull. Soc. Française de Derm. et de Syph.*, January, 1931, p. 117) report the cases of three children suffering from pulmonary tuberculosis, treated continuously for two years or more with intravenous doses of gold salts. In each case the skin of the face after about eighteen months began to show a violet-blue pigmentation recalling the tint seen in argyrosis or in mild aniline poisoning. Only those parts of the skin constantly exposed to the light were affected—namely, the face and neck in a girl, and in two young boys parts of the legs as well; otherwise there were no signs of intolerance or intoxication. The authors recall the great rarity of this condition, and suggest for it the name "chrysocyanose" as being more descriptive and more etymologically exact than "chryose," the term given to it by Zimmerli and Lutz in a comparable case.

Obstetrics and Gynaecology

405 Endometrial Haemorrhage

Believing that the accepted methods of treatment of irregular uterine haemorrhage are empirical and somewhat limited, M. G. SUTTON (*Med. Journ. of Australia*, January 10th, 1931, p. 34) has endeavoured to correlate the clinical histories of patients suffering from this condition with the pathological findings. A short review of the function of menstruation and of its comparative and intrinsic physiology is given, together with the histology of the cyclic changes in the ovary and endometrium. Certain pathological entities of the uterus and endometrium which have been considered to underlie uterine haemorrhages are discussed; such are subinvolution, metritis and endometritis, glandular hyperplasia, and menstrual irregularities. The treatment of these conditions is briefly outlined. Sutton states that, except in bleeding due to retained products, fibroid polypi, and cancer of the uterine body, irregular uterine haemorrhage is extrauterine in origin and often extrapelvic; to the latter class belong the metropathies. Chronic metritis is an infrequent condition, associated with chronic interstitial endometritis, the late result of which is true fibrosis uteri. Paraclimacteric fibrosis is only a relative condition,

and not inflammatory in origin. So-called chronic subinvolution is a misconception; it should be termed "the parous uterus." None of these conditions usually causes uterine bleeding, though they may aggravate and prolong it. Before the menopause the uterus should be conservatively treated, not only because of its gestational function, but also because, due to its complex structure, it possesses an endocrine function and one relating to calcium economy. When haemorrhage is not due to malignancy or large fibroids, partial hysterectomy or myomectomy with ovarian conservation, and *x*-radiation of the thyroid gland, pituitary body, and spleen should be considered. If these fail it may be necessary to procure the destruction of the endometrium by radium or surgical diathermy.

406 Eclampsia

A. C. BECK (*New York State Journ. Med.*, March 1st, 1931, p. 274) reviews the sequels of eclamptic attacks in a series of 97 consecutive cases during the past sixteen years. In the first four years of that period the treatment adopted was the prompt removal of the products of conception, followed by drastic eliminative measures designed to combat the toxaemia; the mortality was 25 per cent. During the next four years neither interruption of pregnancy nor hastening of labour was attempted unless there was some indication other than eclampsia, morphine in large doses and mild eliminative measures being relied upon; the results were much better. In the last eight years of the period it was clearly recognized that eclamptic patients were so hypersensitive to external stimuli that convulsions might be provoked by very slight irritation, such as the passage of a stomach tube, the insertion of a rectal tube, catheter, or hypodermic needle, or by blood pressure determinations. By avoiding all external stimuli as far as possible, placing the patient in a darkened room, and the routine early withdrawal of blood up to 1,000 c.cm. (unless contraindicated by fall in blood pressure or rapid rise in pulse rate), and by the administration of $\frac{1}{4}$-grain doses of morphine hourly until the convulsions ceased or the respirations fell below 12, the mortality was reduced to 6.3 per cent. Beck adds that since no further convulsions occurred after early phlebotomy in 30 out of 40 cases, it seems probable that the lower mortality was largely due to this procedure. The foetal deaths were high throughout the period under review.

407 Labour in the Elderly Primipara

J. P. MAXWELL and A. I. H. WONG (*China Med. Journ.*, February, 1931, p. 113) believe that there is no class of case in which the obstetrician needs to exercise so much thought and care in planning labour as in primiparae over the age of 35. They record a series of 46 such patients seen in the course of nine years in a consecutive total of 2,226 labour cases at the Peking Union Medical College Hospital, and report that the length of labour was far greater than the time taken in the average primipara. There were an abnormal number of occipito-posterior presentations—roughly, one in three of the head presentations—and the numbers of episiotomies and perineal repairs were much above the normal figure. Whereas the Caesarean section rate for the total of these patients was 4.9 per cent., in the elderly primiparae it was as high as 17.3 per cent. Premature rupture of the membranes was frequent; in 13 out of the 46 cases this had occurred, and in most cases long before birth. Three Caesarean sections were performed owing to failure of the cervix to dilate, and on each occasion great difficulty was experienced in detaching the membranes. No forceps delivery was attempted on a case in which the cervix was not fully dilated, and the length of labour in these cases indicated primary uterine inertia as one cause of the difficulties encountered. From 12 patients nine living children were obtained after the membranes had been known to have been ruptured for a long time before birth, similarly indicating primary inertia. Finally, there is the likelihood of no further children being born, and consequentiy the greater need for special care in securing that the child shall be born alive and healthy.

Pathology

408 Excretion of Water and Salts from the Kidney

I. SCIMONE (*Biochim. e Terap. Speriment.*, December 31st, 1930, p. 469) has studied the elimination of water and salts from the kidney after intravenous injections of isotonic solutions of sodium chloride. A series of eighteen rabbits received into the right jugular vein, at the rate of 3 c.cm. per minute, amounts of isotonic salt solution (9.74 grams per litre) ranging from 200 to 600 c.cm. per kilo of body weight. The bladder was ligatured above the urethral orifice, and a glass cannula introduced near the upper end was connected by rubber tubing to a graduated cylinder in which the urine secreted was collected. Measurements were taken of the urine secreted during the injection, and again after three hours' interval. The total excretion increased proportionally to the amount of saline solution injected; the quantity excreted during the injection was several times greater when large amounts were injected than when only small amounts were injected. The total percentage volume of water and the total percentage amount of chloride secreted showed a parallel relation, both increasing as the amount of solution injected was increased, a result to be expected from the necessity of maintaining a constant osmotic pressure of the blood and tissues.

409 Etiology of Gastric Ulcer

Gastric ulcer occurs chiefly along the lesser curvature and in the pyloric region of the stomach, where the mucous membrane secretes no acid but is exposed to the acid secretion formed by the body and greater curvature. It may therefore be due to an excessively concentrated acid secretion, or to a failure of the mechanism which protects the cells. The parts of the stomach actually concerned in the secretion of acid are presumed to be better able to withstand its action. In order to demonstrate the truth of this theory P. SIEBERT (*Deut. med. Woch.*, March 6th, 1931, p. 399) has performed a series of carefully controlled experiments on rats, and has consistently produced multiple gastric erosions by injecting histamine while the animals were fasting, thus producing a powerful and undiluted secretion of acid. The number of ulcers produced corresponded roughly with the number of histamine injections, and some animals developed erosions by starvation alone. The ulceration invariably occurred in that portion of the rat's stomach which does not secrete the acid juice but is exposed to its action.

410 Insulinaemia in the Fat and Thin

D. COLUMBA (*Il Policlinico*, Sez. Prat., February 16th, 1931, p. 219) investigated the amount of insulin in the blood of 12 constitutionally fat and 10 thin persons by the method of Dodds. He found that in every case the hypoglycaemic power of the blood was lower in fat than in thin persons. He therefore came to the conclusion that fat persons present a condition of hypo-insulinaemia which may be regarded as the expression of a latent state of functional insufficiency of the pancreas.

411 Latent and Occult Tuberculous Infection of Bronchial Glands

W. M. CUMMING, S. J. HARTFALL, and J. G. THOMSON (*Journ. Path. and Bact.*, March, 1931, p. 157) examined histologically and by guinea-pig inoculation the tracheobronchial glands of 108 cadavers for the presence of tubercle bacilli. These organisms were found in seven cases, of which four showed no histological evidence of tuberculous lesions. All the seven strains isolated were of the human type, indicating that infection had probably occurred by the respiratory route. Since in the selection of suitable cadavers all cases showing evidence of active tuberculosis were excluded, it follows that these seven cases were all examples of latent tuberculosis, though there is no definite proof that the bacilli were not actively multiplying in the glands.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

412 Pernicious Anaemia Resistant to Liver Treatment

M. LABBÉ, R. BOULIN, PETRESCO, and SOULIÉ (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, February 16th, 1931, p. 217) report a case of pernicious anaemia which, apart from a transient rise of 4 per cent. in reticulocytes, failed to respond to treatment with liver or liver extract, although this was well tolerated, and was administered in doses equivalent to 260 grams of liver each day. The red cell count fell to 1,340,000 per c.mm., and the colour index rose to 1.53; the mean diameter of the erythrocytes was increased; the megalocytes numbered 7 per cent. and the white cells 3,400 per c.mm., but the latter increased to 13,000 with 71 per cent. polymorphs two days before death, when myelocytes and promyelocytes made their appearance. The tongue was smooth and red; there was complete achlorhydria; the patellar and Achilles reflexes were intact but feeble, and the other reflexes were normal. The urine contained abundant urobilin. At the post-mortem examination the bone marrow was described as very red. The authors consider that the patient died from the anaemia, and not from complications developed in the nervous system or from secondary infection, in spite of the raised temperature and the presence of pleural effusion.

413 An Outbreak of Trichinosis

F. C. ALDRIDGE (*Amer. Journ. Med. Sci.*, March, 1931, p. 312), who reports an outbreak in Pennsylvania, states that up to 1914 there had been recorded in the United States 1,550 cases of trichinosis, with 240 deaths, a mortality of 16 per cent. He suggests that the disease is much more prevalent, since the mild cases escape recognition. According to Blumer, 6 per cent. of American hogs have the disease. The outbreak described by Aldridge affected 29 persons, who were almost entirely of foreign birth, during a period of twenty-seven days. All except two were infected by pork from a single farm, where there was undoubtedly a local epidemic of the disease during the winter. Two patients died, 5 were acutely ill, 17 had mild attacks, and 5 had practically no symptoms. Characteristic eosinophilia was found in all except the two fatal cases. The principal clinical symptoms were facial oedema, muscular pains, headache, and fever. Treatment, except for initial purgation followed by an enema, was entirely symptomatic.

414 Pericarditis with Effusion

M. CHAVIGNY (*Paris Méd.*, February 28th, 1931, p. 204) points out that, more often than not, a pericardial effusion is posterior, and its diagnosis is difficult or impossible. He describes a case of a gunshot wound to the right of the sternum in the fourth intercostal space. A right haemothorax and an empyema supervened after three weeks, the latter being drained by operation. Eight days later the temperature rose rapidly to 104°; the heart sounds were not muffled, the apex beat was easily palpable, and dry pericarditis was diagnosed. The patient died of sudden heart failure twenty-four hours later, and at the necropsy there was found a pericardial effusion of about 800 c.cm. Chavigny recalls an earlier case in which he discovered 2 litres of pericardial effusion at the necropsy, though no signs had been apparent during life. Pulsus paradoxus had been noted; its presence led the author to have an *x*-ray investigation made in a later case, when a pericarditis with effusion was seen, though again all the classic signs were absent. Chavigny is unable to explain the mechanism of this sign in these cases, but suggests that its presence should at least indicate the necessity for *x*-ray examination. The only treatment that offers a possibility of cure is a pericardotomy. All his three patients treated in this manner made complete recoveries.

415 Meningococcal Meningitis in Infants

V. CANTALAMESSA (*La Pediatria*, March 1st, 1931, p. 234) records 42 cases of meningococcal meningitis in the first twelve months of life. In 22 the first symptoms were indefinite, consisting merely in irregular fever, restlessness, and vomiting, with frequent loose stools; in some there was only a slight constitutional disturbance. In 20 cases, however, or nearly 50 per cent., the onset was sudden, with high fever and severe constitutional disturbance, as in older children and in adults. This sudden onset was almost exclusively found in cases which had a rapid and particularly severe course in spite of the early application of specific treatment. A distinctly intermittent fever was specially noted in cases which ran a favourable though prolonged course. A moderate degree of splenomegaly was fairly frequent, and its presence was of diagnostic value in some cases.

416 Amylaceous Dyspepsia

L. J. PICTON (*Liverpool Med.-Chir. Journ.*, January, 1931, Part I, p. 36) incriminates starch as a primary cause of many cases of dyspepsia, and insists that bread, rice, and farinaceous foods generally may provoke anginal attacks and delay convalescence, in addition to causing gastritis in some circumstances. He remarks that when a diabetic patient is first placed on a starch-reduced diet, he is often agreeably surprised by the loss of a long-established dyspepsia, whereas the incautious eating of a starchy meal by a patient suffering from amylaceous dyspepsia may give rise to symptoms almost at once. Picton suggests that a working hypothesis to explain this and other phenomena of the kind is that there exists a regulator of the pace of the food through the alimentary canal; this is situated in the stomach, and becomes sensitized to starch, with a consequent reduction in the speed of passage of food and the originating of gastric retention. He adds that the incipient dyspeptic should have a dietary in which more greens and grilled meat replace the farinaceous components to a considerable extent, starchy food being restricted to separate meals. Salads contain 30 times less starch than an equal amount of bread, and afford the necessary bulk to the diet; the addition of fruit is a further improvement.

Surgery

417 Surgical Treatment of Bronchiectasis

C. A. HEDBLOM (*Surg., Gynecol. and Obstet.*, February 15th, 1931, p. 406) discusses the pathogenesis, diagnosis, and treatment of bronchiectasis, which may be unilateral or bilateral, congenital or acquired. In the congenital type, symptoms develop only after secondary infection, while the acquired type results from mechanical dilatation of bronchi weakened by infection. Atmospheric pressure in the presence of a subnormal intrapleural pressure may be the dilating force, or it may be the extrabronchial traction of fibrous scar tissue or a combination of both. This force can be completely neutralized by pulmonary collapse. The morbid process can be arrested by early diagnosis and prompt collapse, which not only prevents the dilatation from increasing, but also produces partial collapse of the dilated bronchi. In an incipient case early diagnosis is made possible by contrast media bronchography; compression treatment gives the best results. A positive contrast media bronchogram affords proof of the site, size, and type of the condition. Partial pulmonary collapse may be brought about by phrenic neurectomy, partial pneumothorax, or circumscribed thoracoplasty; pneumothorax or thoracoplasty will produce complete collapse. Phrenic neurectomy is the method of choice in early cases, and the best results

may be expected from compression treatment. Lobectomy, secondary to thoracoplasty, is safer than primary lobectomy, and is of use when the relief from thoracoplasty is insufficient. For cases with advanced extensive lesions, cautery extirpation and eradication brought about by mobilizing and prolonged contraction of the diseased lobe are alternative methods of treatment.

418 Ambulant Therapy in Proctology

G. SACKS (*Journ. Med. Assoc. of South Africa*, February 14th, 1931, p. 77) emphasizes the value of ambulant treatment in anal diseases. The injection treatment of internal haemorrhoids is in his opinion most valuable, and, except in cases of gross infection and bad prolapse, terminates very satisfactorily. He injects into the rectal submucosa a 5 per cent. solution of phenol in sweet almond oil, one inch or so below the last valve of Houston. The patient is so placed that the anal canal and lower rectum are inclined almost vertically downward, thus allowing air to distend the rectum. Four quadrants are injected at each sitting, 2.5 c.cm. being introduced into each quadrant. At weekly intervals four lower quadrants are injected, until the last injection is just above the haemorrhoids. This treatment is painless. Six or seven sittings may be necessary, but the number varies. The method does not depend on thrombosis, but on perivascular inflammation ending in fibrosis. In treating pruritus, diabetes and threadworms must be excluded, the rectum and anus be carefully examined, the diet be regulated, and cleanliness ensured. Subcutaneous injections may be tried, and silver nitrate solution be applied after anaesthetizing painful cracks and fissures with 10 per cent. cocaine. The skin turns brown, then exfoliates; when this is completed, calamine lotion is sufficient for cure. An operation is never necessary.

419 Treatment of Purulent Arthritis of the Knee

C. Willems some years ago advocated early movement of the joint in the treatment of septic arthritis, on the grounds that drainage was improved, better functional results were obtained, and atrophy of muscles was prevented. M. KAPPIS (*Zentralbl. f. Chir.*, March 7th, 1931, p. 579) has compared the results in 22 cases of septic knee-joints so treated, with 16 cases treated by drainage with immobilization during the acute stages. He finds that the functional results in the former series were definitely better, though the proportions of fatal cases, and of cases which eventually came to amputation, were about the same. The movements are induced as soon as puncture and lavage, or if necessary drainage by trocar or by incision, have been performed. If conducted sufficiently thoroughly, and the drainage is satisfactory, the movements should not be painful.

420 Hirschsprung's Disease

M. CHATON (*Bull. et Mém. Soc. Nat. de Chir.*, February 14th, 1931, p. 178) describes a case of Hirschsprung's disease in a man aged 21. Since birth he had suffered from obstinate constipation, and at the age of 11 an ileo-sigmoidostomy had been performed. When admitted to hospital ten years later he was suffering from complete intestinal obstruction; the bowels had not been opened for eleven days, and there was persistent vomiting. The abdomen was greatly distended, the respiration embarrassed, and the pulse rate 100. Radiography showed an enormous gaseous dilatation of the colon, which pressed against the diaphragm and caused the respiratory distress. An opaque enema stopped at the junction of the sigmoid and of the descending colon, which was also greatly distended. Operation through a McBurney's incision disclosed the large intestine considerably dilated, and an artificial anus was immediately made which allowed much gas and faeces to escape. The patient was instantly relieved, and the abdomen regained its normal size and appearance. Two months later the patient was in good general condition, but still showed some abdominal distension. An *x*-ray examination revealed that there was a condition of congenital megacolon combined with a reflux of faeces through the ileo-sigmoidostomy made ten years before. This had produced the symptoms of obstruction by general compression of the intestinal tract. Laparotomy was carried out and a huge megacolon was found. A complete colectomy was done and the operation was well borne, convalescence being uneventful. The patient subsequently left hospital in good health.

421 Staphylococcal Septicaemia

P. S. LOWENSTEIN (*Amer. Journ. Med. Sci.*, February, 1931, p. 193) illustrates the gravity of this condition by the fact that of 57 recently reported cases death occurred in 35, a mortality of 61.4 per cent. The prognosis is grave owing to the severe constitutional symptoms and the formation of multiple metastatic abscesses. The outlook is all the more serious if the focus cannot be removed or sterilized. Lowenstein recommends that blood cultures in suspected cases should be made at the earliest possible moment by a competent bacteriologist, and in the event of a negative result should be repeated at frequent intervals until bacteriaemia is ruled out. Although the value of staphylococcal antitoxin is still doubtful, it should be used in large doses intravenously, intramuscularly, and, if indicated, intraspinally. In chronic cases also staphylococcal vaccine is sometimes of value.

Therapeutics

422 Copper and Blood Formation

E. SCHIFF (*Med. Welt*, March 7th, 1931, p. 334) discusses the therapeutic uses of iron and copper in the treatment of anaemia. He refers to the observations of Steenbock and others that the readily soluble salts of iron ($FeSO_4$) are therapeutically more active than the less soluble salts (Fe_2O_3), but adds that these compounds become increasingly potent if the animal is also fed on fresh green vegetables or iron-free alcoholic extracts. Anaemic rats fed with high-grade refined iron salts remained anaemic, owing possibly to the removal of copper from the iron salts in the refining process. Copper is not comprised in the haemoglobin molecule, but all animal and vegetable cells contain copper. In milk there is about 0.06 mg. per cent., human milk containing about the same amount as cow's milk or goat's milk. The foetal liver contains about 1.97 mg. per cent., but there is less in the liver of the newly born, and in growing animals it has been shown that there is an increase of copper in the blood during pregnancy. It is suggested that the administration of copper together with iron, owing possibly to some catalytic action on the part of the copper, enables the therapeutic properties of the iron to become active.

423 Specific Hormone Treatment of Heart Disease

O. J. NIELSEN (*Ugeskrift for Laeger*, March 5th, 1931, p. 240) reports investigations on 47 patients suffering from various diseases of the heart; he treated them with lacarnol, an extract of heart muscle prepared by Bayer-Meister Lucius, and said to contain a cardiac hormone. The first therapeutic tests of this preparation were made some three or four years ago, when it was given by the mouth. Among the author's 47 patients were 18 suffering from true angina pectoris. Twelve of these patients derived so much benefit from this treatment that, since its institution, they had been completely free from attacks, the observation period being in no case less than three months. Three other patients, who had been subject to frequent attacks, suffered from them only occasionally, and the remaining three patients derived only transient improvement from the treatment. Of the 2 patients suffering from nervous angina pectoris, one improved under this treatment, which did not affect the other patient. Of the 4 patients suffering from deterioration of the myocardium without angina, two achieved marked improvement and one some improvement. The 2 patients suffering from arrhythmia perpetua derived some improvement, and of the 4 suffering from mitral disease, one showed marked and two some improvement. Among the 7 patients suffering from some neurosis of the heart

were four benefiting from the treatment. This was the case with three of the 8 patients suffering from high arterial blood pressure. Good results were also obtained in 2 cases of encephalitis with heart disease. The author finds it too early to be dogmatic about dosage, but his preliminary observations, which he finds encouraging, suggest that for severe forms of angina pectoris the following procedure is suitable. On the first day 1 c.cm. is given by intramuscular injection once or twice, and 15 to 20 drops three times by the mouth. On the following days the drug is given orally, its dosage being gradually reduced till only 5 to 10 drops are given two or three times a day. In no case did the drug cause signs of poisoning.

424 Gastric Tissue in Pernicious Anaemia

H. M. CONNER (*Journ. Amer. Med. Assoc.*, February 14th, 1931, p. 500) records the results obtained in 60 patients suffering from pernicious anaemia following treatment with extract of the gastric tissue of swine or with tripe. Two patients were given gastric tissue after tripe had failed, but tripe constituted the sole treatment given to two others. Forty-six cases were studied in hospital. The results with tripe are not included in this report as they were inconsistent and unconvincing, and were much inferior to those in cases treated with raw or dried gastric tissue. When the entire gastric wall was used, 240 to 480 grams were given daily, and half this amount when the mucosa only was administered. Raw and dry preparations yielded approximately equivalent results. The mucosa, the remainder of the stomach after removal of the mucosa, and whole gastric wall, were used separately; each proved effective. The presence of muscle was not required to obtain results in two cases treated with mucosa without the muscle coat or other muscle meat. Fundus and pylorus tissues, each used separately, produced satisfactory, if not equivalent, results. The effects on the reticulated and mature erythrocytes, haemoglobin and leucocytes, and also on the general and neurological symptoms, were similar and apparently equivalent to those obtained by liver or liver extract.

Radiology

425 Examination of the Fifth Lumbar Vertebra

H. HARTTUNG (*Zentralbl. f. Chir.*, February 21st, 1931, p. 453) remarks that owing to the change of curve from lumbar lordosis to sacral kyphosis, the fifth lumbar vertebra is particularly difficult to demonstrate clearly on a skiagram by the usual technique. By powerful flexion and abduction of the hips and flexion of the knees, the adoption almost of a lithotomy position, the lumbar lordosis can be eliminated and satisfactory skiagrams obtained. The position can be easily maintained by a girdle running behind the patient's neck, from one knee to the other. In a series of photographs the author illustrates the fact that many cases diagnosed as sacralized or otherwise abnormal lower lumbar vertebrae prove to be completely normal when photographed by the technique described.

426 Diagnosis of Tumours of the Small Intestine

T. S. RAIFORD (*Radiology*, February, 1931, p. 253) discusses the diagnosis of tumours of the small intestine, with special reference to their *x*-ray appearances. A flat plate view of the abdomen is essential for comparison with plates from other directions, as well as to reveal the presence of large dense intra-abdominal masses. The barium meal is administered after this plate has been obtained, and half an hour later the plate for the duodenum is exposed. Subsequent plates are taken at intervals of four or eight hours, followed by a final 24-hour plate on the next day. A barium enema should be given at the end, in order to rule out involvement of the large intestine, and to reveal tumours near the ileo-caecal junction which press upon the caecum, causing a filling defect. All plates are taken with the patient standing up; if slightly over-exposed, the filling defects are more clearly brought out. From the radiological standpoint three sections of the small intestine are definable—namely, the duodenum, the jejunum and proximal ileum, and the terminal ileum. Raiford reports a series of 82 tumours of the small intestine, of which 39 showed no symptoms, and suggests a basis for the diagnosis of such conditions: by associating a complete *x*-ray examination of the whole gastro-intestinal tract with other investigations in doubtful cases, the radiologist will be able sometimes to give the patient the benefit of an early operation, or, conversely, to save him from a useless and discomforting laparotomy. This is particularly the case when a lesion of the duodenum is suspected; and another important indication for radiography is the possibility of the presence of non-obstructive growths in the abdominal cavity.

427 Radiography of Discrete Pulmonary Lesions

Commenting on the great diversity of techniques employed in pulmonary radiography, A. ZIMMERN and G. ARVANITAKIS (*Journ. de Radiol. et d'Électrol.*, January, 1931, p. 1) propose a uniform, systematized method which is specially applicable to discrete lesions and slight changes in the pulmonary parenchyma. Essentials for accurate diagnosis are a perfect definition, richness of details, and clearly defined contrasts. While certain factors cannot be standardized, such as the different types of apparatus used, some can be easily systematized. Among these are the position of the patient, the incidence of the rays, the anticathode distance, and the length of exposure. The apparatus should be placed against the thorax of the patient, who should be upright with arms crossed in front and with a forward rotation of the shoulder. This position clears the apices from clavicular shadows, and separates the scapulae. The radiograph should be taken in apnoea at the moment of inspiration. Brevity of exposure and correctness of the focal distance are the essentials of definition. The authors have found that one-tenth of a second is the maximum duration compatible with correct definition, and they propose that in adults an irradiation of 5 5/6 of the Benoist dose should be employed; this corresponds to a maximum of 65 kV. In children, according to their age and development, a lower tension (as low as 55 kV. for nurslings) should be used, and the exposure be shortened, since in the case of infants plates are easily over-exposed. The intensity employed depends on the type of apparatus.

Obstetrics and Gynaecology

428 The Female Sex Hormone in Pregnancy

G. L. KELLY (*Surg., Gynecol. and Obstet.*, March, 1931, p. 713) concludes, as the result of a series of experiments on guinea-pigs, that an excess of oestrin in the blood over the corpus luteum hormone is incompatible with conception and with the continuation of normal pregnancy. He found that the injection of small doses of oestrin into female guinea-pigs immediately after copulation prevented conception in all cases when the dose was adequate, the minimum dosage being 10 to 15 rat units. Moreover, interruption of pregnancy in this animal, when about two weeks advanced, could be effected in almost all cases by a dose of 100 rat units. Higher doses were similarly effective in later stages, but the maternal mortality rose rapidly. The death of the foetus after the injections seemed to be related to marked atrophic changes in the chorionic villi, resulting from pressure due to excessive hyperaemia or some other cause. The reason for the death of the mother was not discovered. The administration of oestrin in doses as high as 600 rat units to male and non-pregnant female guinea-pigs did not interfere in any way with their health and life.

429 Neo-natal Asphyxiation

Y. HENDERSON (*Journ. Amer. Med. Assoc.*, February 14th, 1931, p. 495) believes that the natural stimulus which initiates breathing in the normal child at birth is the carbon dioxide produced in its own body. The asphyxiated centre of the newly born, or of a drowned person, requires a much higher pressure of carbon dioxide than does a normal centre to stimulate it to respiratory activity. For such an asphyxiated newly born child dilatation of the lungs by a mixture containing a sufficient amount of carbon dioxide in oxygen to stimulate natural breathing is the one effective method of resuscitation. Inhalation of such a mixture is also equally important for many children who breathe spontaneously, for incomplete pulmonary dilatation is relatively common, and this predisposes to pneumonia, causing nearly as high a mortality as stillbirth itself. Henderson recommends such inhalation for all children in the first days of life as a precautionary measure against continuing partial atelectasis, secondary asphyxia, and pneumonia; he advises that maternity hospitals should be equipped with a suitable apparatus for treating the mother also when an anaesthetic has been found necessary. For prematurely born infants a small chamber, heated from below, may conveniently be employed for the administration of a suitable mixture of carbon dioxide with oxygen. The use of high percentages of carbon dioxide—over 10 per cent.—is unwise, except in skilled hands, but it has saved a few lives which could not have been preserved otherwise, for the deeper the asphyxial depression, the higher is the percentage of carbon dioxide required to induce breathing. The optimum amount for general use is stated to be about 7 per cent.

430 Peritoneal Bleeding from Perforation by Uterine Chorion-epithelioma

According to J. CREYSSEL and C.-E. BOYER (*Gynécol. et Obstét.*, January, 1931, p. 1) intraperitoneal haemorrhage due to chorion-epithelioma perforating the uterus is not very rare; it has a fairly characteristic syndrome, detection of which, however, may be made difficult by an exaggerated defence of the abdominal muscles. The syndrome consists in (1) signs of profuse intraperitoneal bleeding, which are of intense acuteness and gravity; (2) enlargement of the uterus to the size of a three or four months' pregnancy; and (3) a history of menstrual trouble—menorrhagia and/or metrorrhagia (especially the latter) following the last pregnancy, which may have terminated in expulsion of a hydatidiform mole. Treatment consists in panhysterectomy. Although the operative mortality in the anaemic patients who are suffering from shock is 50 per cent., and lasting cure is rare, this operation is preferable to subtotal hysterectomy, for the reason that radical cure is by no means impossible. Metastases are rarely present at the time of perforation, and permanent recovery ensues in 30 per cent. or more of operations for imperforated uterine chorion-epithelioma after radical excision.

431 Curetting in Chronic Gonorrhoea

E. J. ORSÓS (*Zentralbl. f. Gynäk.*, February 21st, 1931, p. 476) describes the case of a 2-para who had been treated in hospital for fourteen months for gonorrhoea without improvement. In spite of the presence of moderate pyrexia he curetted the corpus and cervix uteri; the convalescence was uneventful, a cervical erosion healed speedily, and gonococci were not found after the eighth day. Encouraged by this result, Orsós has performed a similar operation in 63 cases of gonorrhoea, of which two-thirds had been at least 100 days under treatment. The patients are afterwards kept in bed for eight days, and no pelvic examination is undertaken until the ninth day. Forty-five patients were speedily cured, and in three only was the operation followed by pyrexia or parametrial pain. Many writers have expressed the opinion that surgical intervention such as cervical dilatation or curetting is strongly contraindicated in cases of chronic gonorrhoea, and of the advocates of active treatment many restrict it to the cervix.

Pathology

432 Etiology of Post-operative Pulmonary Collapse

A. DEI ROSSI (*Arch. Ital. di Chir.*, February, 1931, p. 193) carried out experiments on cats and dogs which consisted in immobilizing the thorax by phrenicotomy and paravertebral neurotomy, and occluding the large and small bronchi by various methods. His experiments confirmed those of previous workers to the effect that it was possible to obtain regularly and rapidly atelectasis of parts of the lungs by complete occlusion of the corresponding bronchi. The atelectasis always developed sooner when the small bronchi were occluded than when the occlusion involved the large and moderate-sized bronchi. The introduction of thick and viscid material such as a sponge or gum into the respiratory tract never produced massive collapse of the lung, but only small scattered foci of atelectasis. Dei Rossi's experiments thus confirm the view held by American writers as to the occlusive origin of pulmonary atelectasis.

433 Dual Innervation of Striated Muscle

C. BALLANCE (*Arch. Neurol. and Psychiatry*, January, 1931, p. 1) records experiments in which the central end of the divided cervical sympathetic nerve was anastomized to the peripheral end of the divided facial nerve and to the peripheral end of the divided hypoglossal nerve. The intention was to elucidate the apparently contradictory results obtained when the central end of the cervical sympathetic nerve was united with the peripheral end of the trunk of the facial nerve. Complete functional and anatomical recoveries of the striated muscles of the face and tongue, and of the depressor muscles of the hyoid and larynx, were observed. No muscle fibres of the face or tongue muscles, or of the sterno-hyoid or sterno-thyroid muscles, appeared to be atrophied, as they should have been if a dual innervation was necessary for the complete restoration of function. The sympathetic fibres seemed to join at the anastomoses with the larger cranial nerve fibres, and there was no microscopical evidence that they continued into the cranial nerve trunks. The author is uncertain whether these experiments give any support to the view that the anatomical and functional perfection of striated muscles depends on a dual innervation, but he is inclined to think that they do. For the complete health of a striated muscle fibre, impulses must come to it from the cerebral cortex, as well as from the cells of origin of the sympathetic.

434 Dissociation of the B.C.G. Strain

R. S. BEGBIE reported last year that he had been able, by plating on Petroff's medium, to obtain three different colonial variants of the B.C.G. strain: (1) a smooth variety, with a central dome and spreading margin; (2) a rough variety, composed of heaped-up coils, and relatively compact; and (3) an intermediate variety with an umbilicated centre and a slightly crenated margin. The rough variety was similar to that described by Petroff; the smooth variety differed from Petroff's smooth type; and the intermediate variety had not been described by Petroff. In a later paper (*Edin. Med. Journ.*, March, 1931, p. 173) the author now describes virulence experiments carried out on guinea-pigs with the three variants, as well as with two different strains of the undissociated culture. Intracardiac and subcutaneous inoculations were employed, the dose in each series being equivalent to 2 mg. of the dried organisms. Many of the animals injected intracardially died, with multiple tubercles in the viscera; since the dose was large, and as no control animals injected with killed organisms were used, it is difficult to interpret the results. None of the animals injected subcutaneously died, and when killed 69 to 102 days later some of them showed, besides a local lesion, small tubercles in the internal organs. No clear-cut distinction was established between the virulence of the different variants or whole cultures examined.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

435 Cardiac Disease and Urinary Retention

S. G. STEWART (*Amer. Journ. Med. Sci.*, March, 1931, p. 362) discusses the relations between chronic bladder obstruction and disease of the heart, reviewing the results obtained from bladder drainage in a series of 40 prostatic patients with cardiac symptoms. Decompensation occurred in 12; all except 3 of these were greatly improved by prostatectomy, compensation being restored and maintained without the aid of digitalis. In 3 out of 5 cases of auricular fibrillation the rhythm became regular again after bladder drainage, and has remained so. Partial heart-block was present in two cases; the conduction time became normal in one after bladder drainage, and in the other after prostatectomy. Digitalis was not used in either instance. Extrasystoles were numerous in 15 cases, but disappeared completely with bladder drainage in all except one. Stewart remarks that, since in 22 out of the 40 cases in this series cardiac arrhythmias developed, and were corrected in all but 3 by the relief of the urinary obstruction, there must be a definite relation between bladder retention and the functioning of the heart. Arterio-sclerosis was an outstanding feature in this series, occurring in 28 cases, retinal arterio-sclerosis being prominent in 24. Advanced coronary sclerosis was found in 4 out of 5 necropsy cases, and moderate sclerosis in the fifth. The average age of these patients was 67, and the systolic blood pressure never rose above 160. The author insists on the need for adequate urological histories being obtained when dealing with male cardiac patients past middle life. He discusses the risk of catheter infection, maintaining that no serious complications need be expected necessarily from the use of the permanent catheter, although the coexistence of oedema and diabetes constitutes a real danger signal.

436 The Negative Phase in Immunity to Diphtheria

R. PRIGGE (*Med. Klinik*, March 20th, 1931, p. 419) records his experiments on guinea-pigs to determine the presence of a negative phase after active immunization against diphtheria, and comes to the following conclusions. (1) Guinea-pigs with formolized vaccines against diphtheria toxin or diphtheria bacilli do not show an increased susceptibility to diphtheria toxin, or increased liability to be infected by diphtheria bacilli, provided the dose of vaccine has not been too high. (2) An increased susceptibility is produced only by a considerable overdosage of vaccine. It is not yet decided whether this should be regarded as a negative phase in the ordinary sense of the term, or as damage due to excessive dosage. (3) In the active immunization of human beings the dose of vaccine is 100 to 200 times smaller than that used in experimental work on animals without causing any hypersensitiveness. It can therefore be concluded with a probability bordering on certainty that the occurrence of a negative phase can be excluded in the active immunization of human beings against diphtheria.

437 Essential or Familial Haemophilia

P. CHEVALLIER and R. GOLDBERG (*Rev. de Méd.*, February, 1931, p. 126) preface a study of essential haemophilia with descriptions of its anthropological characters, its various predispositions, and its pathology. In this disease, which is confined principally to males, the subject is apparently in perfect health; a haemophilic facies does not exist. There are two types of haemorrhage, external and internal, or the haematoma. Large haematomas tinge the skin yellow and are accompanied by urobilinuria; the haemorrhages heal as in normal persons. The haemophilic bleeds easily, often, and at any organ, though the bleeding is almost always localized to a single site; the haemorrhages are often provoked by the slightest cause. Retarded coagulation of the blood is a characteristic phenomenon; no other haemic changes occur, and all the signs of purpura haemorrhagica are absent. Vascular fragility, chiefly of the arterioles, is present. Haemophilia is always manifested in early life; in 75 per cent. of cases the first bleeding occurred before the age of 2 and never after 22. Though not progressive, the disease is incurable, and death is often an early sequel; consequently, the prognosis is always grave. Various local cutaneous and muscular manifestations are described by the authors, and the differential diagnosis is discussed. Treatment is unsatisfactory; it comprises eugenic precautions, cure of the diathesis, and treatment of the haemorrhages. Many methods have been employed to establish diathetic cure: hygienic and dietetic measures; vegetable and animal extracts; and various drugs, such as calcium chloride and peptone. Treatment of the haemorrhages is general and local. The former includes the injection of serum or of whole blood, of emetine, and of pituitary extract. Compresses soaked in serum and ice are good local measures. Haematomas should be incised and filled with some coagulant. Cauterization is contra-indicated, since the subsequent separation of the scar might prove dangerous.

438 Hypochromic Anaemia with Achlorhydria

T. R. WAUGH (*Arch. Int. Med.*, January, 1931, p. 71) describes cases of anaemia which he regards as a special disease entity quite distinct from chlorosis or pernicious anaemia, and without association with the anaemia of haemorrhage. The chief feature is hypochromia; the red cells are moderately reduced in number to 3.5 or 4 millions per c.mm., but the haemoglobin is diminished by 30 to 60 per cent., and there is consequently a low colour index. These changes are associated with hypochlorhydria or even complete absence of free hydrochloric acid after a test meal. All the patients were women of 35 to 45 years of age, and no case occurred after the menopause. The clinical symptoms were not severe and were not relieved by liver diet; treatment with iron or arsenic gave doubtful results, and any benefit from transfusion was only temporary. The condition is very chronic, lasting over a period of years, but no fatal cases are reported.

439 Etiology of Chorea

ANDRÉ-THOMAS (*Presse Méd.*, March 4th, 1931, p. 337) reports a case in which spontaneous jerky actions supervened in the left half of the body, except in the muscles of the face, neck, and trunk, after a sharp attack of left hemiplegia, and after the power of movement had clearly been restored. These movements resembled in many respects the motor agitation manifested in young choreics. For various reasons the author classifies this case as one of post-hemiplegic chorea, and discusses the pathology of that disease. Lesions in many cerebral centres have been advanced as the origin of choreic movements; these are enumerated. Monakow has concluded, from the diversity in the sites of the lesions and their symptomatology, that hemichorea assumes very different aspects, corresponding to the various areas affected. André-Thomas believes that the cerebral cortex plays a part in the production of choreic movements. This lesion is not the sole factor to be considered in the pathology of the disease. Many other contingencies intervene, among which are psycho-emotive variations, and endocrine and humoral disturbances. Clinical and anatomical studies of chorea, and of the conditions which provoke the appearance of choreic movements, demonstrate an abnormal sensitivity of the cortical centres governing such acts. This enhanced sensitivity is not peculiar to chorea, but can develop in various affections of the centres; it varies in form and localization with the nature and site of the

initial lesion. The cortex need not be directly involved by the lesion; the symptoms can be the result of a lesion more or less removed from the centres apparently implicated.

440 Gastric Syphilis simulating Carcinoma

G. BELL and A. H. TEBBUTT (*Med. Journ. Australia*, January 17th, 1931, p. 81) report the case of a naval stoker, aged 37, who complained of dull aching pain over the epigastrium, and sickness soon after food. The duration of the illness was six months, and there was no history of venereal disease. He had lost 2 stone in weight, and his bowels were constipated and irregular. There was tenderness over the pyloric area but no palpable mass. An *x*-ray examination revealed a subtotal pyloric obstruction and a large filling defect of the pylorus, which suggested malignant disease. A fractional test meal showed a fasting residue consisting of 200 c.cm. of bile-stained fluid with much muco-pus and no acid. Occult blood was present. After a test breakfast there was neither hydrochloric nor lactic acid. The stomach did not empty in three hours. Malignant disease of the pyloric end of the stomach was diagnosed, but the Wassermann test gave a strongly positive reaction. The patient was given intensive antisyphilitic treatment for three weeks, and was then submitted to laparotomy. The pyloric end of the stomach was found to be infiltrated and thickened; it was resected and a gastro-enterostomy was performed. Recovery was uneventful. Naked-eye and microscopical examination showed erosion of the mucosa not involving the muscularis. There was marked infiltration of the submucosa by round cells, plasma cells, endothelial cells, and eosinophils. In the muscularis and the submucosa were found giant-cell systems typical of tuberculosis. Marked obliterative endarteritis was found in several vessels.

441 Deafness in Trichinosis

H. BOSCH (*Münch. med. Woch.*, March 13th, 1931, p. 431) records the case of a woman, aged 51, in whom an attack of trichinosis was complicated by deafness in both ears. Otitis media could be excluded, and Bosch comes to the conclusion that the condition is similar to that met with in other infectious diseases, such as typhoid fever, mumps, malaria, influenza, scarlet fever, and diphtheria, in which toxic neuritis occurs. The condition was not due to direct damage to the auditory apparatus by trichinellae, or to any therapeutic cause, since only indifferent drugs were used.

Surgery

442 Treatment of Varicose Veins

C. P. LOPEZ (*Bull. et Mém. Soc. Chir. de Paris*, February 6th, 1931, p. 57) enumerates the various solutions which may be injected for the treatment of varicose veins; he points out that the ideal injection must be sterile, and it must be performed with sufficient pressure to fill even the smallest varicose vessel. In addition, it must produce thrombosis and sclerosis of the veins, and must be antiseptic to obviate any risk of suppuration in the venous thrombus. Ether, it is stated, fulfils all these conditions. At a temperature of about 35° C. it becomes a gas, and exerts enough pressure to penetrate the varicose venous system completely. A tight tourniquet placed at the top of the limb undergoing treatment prevents the ether from entering the general circulation. Within an hour after the injection the ether is absorbed, and has so completely disappeared that it is possible to remove the tourniquet. After the injection the veins become turgid as if they were going to burst, and pressure with the finger gives the sensation of gas in the veins. After fifty or sixty minutes the swelling disappears, while the veins become hard. The patient must remain in bed for four to eight days following the injection. Sometimes at different points in the vein extravasations of blood appear; these are later detached as small scabs, which may leave a scar. At first the varicose vein will have the appearance of a cord, which is hard to the touch but not painful, but at the end of several months the vein shrinks, and gradually disappears. One hour before the ether is injected an injection of 1 cg. of morphine is given. As a general rule two injections of 1 to 1½ c.cm. of ether are found to be sufficient, although a third may be given if necessary. Twenty-two cases have been treated by this method, but no end-results or clinical observations are given.

443 As a radical cure for varices, H. JAUSION, E. CARROT, and A. GERVAIS (*Bull. Soc. Franç. de Derm. et de Syph.*, February, 1931, p. 171) recommend intravenous injections of glycerin diluted to one-third. While the excessive viscosity of too concentrated solutions should be avoided, yet a sufficient strength must be used. The authors recommend a mixture of 126 grams of 98 per cent. anhydrous glycerin (which must be free from arsenic) with 200 c.cm. of distilled water; one drop of Ziehl's carbolized fuchsine is added for each c.cm. to ensure sterility. If desired, the solution can be further sterilized by autoclaving at 100° C. for half an hour. Large doses (10 to 20 c.cm.) should be injected quickly in about half a minute to obtain the best results. The injections should be repeated every eight days, with an interval of about a week between each treatment, till cure results; as a rule two to four treatments suffice. In the doses prescribed the mixture is not toxic or escharotic. The tolerance for it is perfect, no shock follows the injection, and the phlebosclerosis is rapid and complete. In the last few months 57 patients of all ages and both sexes have been satisfactorily treated by this method; details of four of these are given.

444 Treatment of Parotid Epithelioma

Tumours of the parotid are usually malignant and of grave prognosis. Rapid recurrence as a rule follows surgical intervention, and the radio-resistance of the neoplasms often renders radiation useless. J. BELOT and G. MÉNÉGAUX (*Journ. de Radiol. et d'Électrol.*, February, 1931, p. 90) report a case of epithelioma of the parotid in which cure has persisted for twenty-six months after irradiation. A woman, aged 62, had a small tumour in the left parotid region in front of the tragus. This was excised, and proved to be a muciparous epithelioma of cylindrome type, a tumour of restricted malignancy. After the operation a paresis in the upper distribution of the facial nerve ensued. A month later there was recurrence under the cicatrix, and intensive irradiation was then given; for four weeks 5,000 R were applied directly to the left side, and 3,000 R to the right in order to reduce the dose absorbed by the skin on the left. After this treatment the patient showed considerable asthenia and complained of great dryness of the mouth. At the present date there is no trace of any recurrence, the general health is excellent, and the facial paralysis has disappeared. Only a slight lacrymation and dryness of the mouth persist.

445 Vesical Tumours

R. F. MATHEWS (*Amer. Journ. Surg.*, February, 1931, p. 343) defines three groups of bladder tumours: (1) growths, either papillomatous or pedunculated, which project well into the bladder; (2) sessile growths which spread laterally along the bladder mucosa and project less into the bladder; and (3) infiltrating growths, which invade every layer of the bladder and of the surrounding bladder tissue. Bladder tumours are either benign, the papilloma being the most common of this type, or malignant, such as malignant papilloma, papillary carcinoma, adenocarcinoma, and epithelioma. The benign papilloma is always intravesical and begins as a tiny excrescence on the surface of the epithelium. Later on this frequently becomes malignant, with thickening of the epithelial layers, multiplication of the layers, and fusion of the papillae. Bladder tumours are most common in the region of the trigone and ureteral orifices, and occur in males and females in the proportion of 4 to 1. Secondary effects of bladder tumours are bleeding, obstruction in the ureter or urethra, necrosis, ulceration, encrustation, stone formation, infiltration of the bladder wall, and infection. Painless haematuria is usually the first and only symptom;

it occurs in 90 per cent. of cases. It is generally intermittent, and cystoscopy should be undertaken at a time when the bleeding has stopped in order that the tumour may more easily be identified. Treatment depends on the nature and location of the tumour; excision or resection did not relieve the condition, and in some cases aggravated the symptoms, there being superadded implantations and metastasis. Radium in the form of radon seeds, used in conjunction with other methods of treatment, has proved satisfactory. High-frequency current through the cystoscope, or by suprapubic operation, has worked well in apparently hopeless cases, and for benign growths fulguration with the bipolar high-frequency current is the treatment of choice. Deep *x*-ray therapy can be used successfully as an adjuvant to other types of treatment, and relieves pain. The mortality rate for all types of carcinomatous tumours of the bladder was 75 per cent.; in cases of malignant papilloma it was 12 per cent., and in cases of benign papilloma there were no deaths.

446 Treatment of Cancer of the Prostate and Bladder

A. SANCHIZ and A. TORRA HUBERTI (*Zeit. f. Urol.*, Heft 3, 1931, p. 196), who record six illustrative cases, conclude that the question of complete recovery in carcinoma of the bladder and prostate is not yet settled. Treatment by the insertion of radium tubes directly into the tumour masses appears to be correct, judging from the objective results and what is found on palpation. The chief indication for this procedure is to be found in early cases. In advanced cases, in which the technique is more dangerous, the treatment is not so clearly indicated. The hypogastric route appears to be the most suitable for the insertion of the radium tubes. At the present time a combined method of treatment seems to offer the best prospect—namely, the association of radium with the application of other physical agents or with a suitable surgical operation.

447 Chondromas of the Hand

F. J. VIDAL (*Rev. med. de Barcelona*, January, 1931, p. 34), who records two illustrative cases in girls aged 14 and 15, states that chondromas are comparatively rare tumours which are most frequently localized in the hand, and then in decreasing order of frequency in the scapula, femur, long bones, spine, ribs, cranium, bones of face, and hyoid. They are sometimes single, but are usually multiple, and form spherical, lobulated, or diffuse masses of homogeneous, semitransparent opaline tissue. The tumour may undergo a calcareous, cystic, or malignant change. Operation is indicated in the case of large chondromas, or for aesthetic reasons, as well as in cases in which malignant degeneration has occurred; it consists in removing the tumour and scraping the bone. The insertion of bone grafts, as recommended by Michon, is unnecessary.

448 Congenital Diaphragmatic Hernia

J. QUÉNU (*Bull. et Mém. Soc. Nat. de Chir.*, March 7th, 1931, p. 307) reports a case of congenital diaphragmatic hernia in a woman, aged 47, which was discovered after a fall. The first symptoms of pain and sickness occurred during the meal immediately following the fall, but they subsided and did not recur until a year later, when the patient was treated for cholecystitis and then for colitis. Further attacks of pain followed at intervals of a few months, and in each case the symptoms appeared at the end of a meal. There was acute pain in the epigastrium which was referred to the back and the left shoulder, and was accompanied by nausea and vomiting. The patient had lost weight, and radiography showed a bilocular stomach of which the upper pouch was above the diaphragm; a diagnosis of left diaphragmatic hernia was made. Laparotomy confirmed the *x*-ray and clinical findings that there was an incomplete herniation of the stomach through the diaphragm. At the operation it was found that the hernial opening was postero-internal at a little distance from the oesophageal orifice, that the opening would only admit two fingers, and that the hernia did not contain the large intestine. The thoracic portion of the stomach was drawn down into the abdomen, the hernial sac was resected, and the opening in the diaphragm was closed by interrupted sutures. Convalescence was comparatively uneventful, and the patient made a good recovery. Radiography six months later showed that the movement of the diaphragm had greatly improved.

449 Osteomyelitis Variolosa

C. F. EIKENBARY and J. F. LECOCQ (*Journ. Amer. Med. Assoc.*, February 21st, 1931, p. 585), who record three illustrative cases in children aged 7, 11, and 14, state that in addition to ordinary acute osteomyelitis the virus of small-pox may undoubtedly cause a non-suppurative osteomyelitis. The virus is situated apparently in the epiphyseal lines of the long bones; it produces an aseptic necrosis which chiefly affects the growing cartilage cells of the epiphyseal lines and causes premature closures. The diagnosis of osteomyelitis is often not made during the acute stage, and it is only after the acute attack that the deformities caused by inequality of the growth of the long bones show themselves. The deformities do not occur in adults because bone growth has ceased, and the small-pox virus apparently affects only the epiphyseal lines of bone. In obscure deformities of bone, therefore, a careful inquiry should be made as to an attack of small-pox in childhood.

Therapeutics

450 Nascent Iodine in Pulmonary Tuberculosis

J. G. MACKERETH (*New Zealand Med. Journ.*, February, 1931, p. 23) strongly commends the treatment of pulmonary tuberculosis with nascent iodine. In the first week he gives 10 grains of potassium iodide in 1 oz. of water at 7 a.m., following this two hours later with 1 oz. of liquor chlorini in half a pint of lemonade or water. In the second week the amount of potassium iodide is doubled; the chlorine dose is given at 9 a.m. and repeated at 11 a.m. In the third week the potassium iodide is increased to 30 grains, and three doses of the chlorine solution are administered at two-hourly intervals; this programme is then maintained so long as is found desirable, no further increases being necessary. The only untoward symptom noted was dyspepsia, generally in the form of the aggravation of pre-existing dyspeptic symptoms. In no case was dyspepsia originated by the treatment. In the first and second weeks there was some rise in temperature occasionally, and some increase in cough, but these symptoms were never alarming, and soon settled down. Beneficial results appeared within the first week in many cases, but improvement was usually not definite until the end of the third week, the toxic symptoms subsiding, and the bacilli beginning to disappear from the sputum. The author considers this form of treatment antiseptic rather than specific, but he denies that it is any less effective in primary tuberculous cases before the secondary organisms have appeared, provided that they are open cases. He believes that it is particularly indicated for the more advanced type of case, and should enable such patients to be restored more quickly from the hospital to ambulant treatment.

451 Combined Treatment of General Paralysis

A. JORDAN (*Rev. Méd. de la Suisse Romande*, February 25th, 1931, p. 99) describes the results obtained from stovarsol and malarial treatment in general paralysis of the insane. Between 1924 and 1928, 22 cases of general paralysis were treated with stovarsol; of these, 7 patients were mentally excited or megalomaniac, 9 were feeble-minded, and 6 had dementia. In the first group, three patients were able to resume social life, two were improved, and two remained stationary. In the second group, one patient became very much better, three were improved, three remained stationary, and two died. In the third group, one patient was much improved, four remained stationary, and one died. Jordan regards cachexia, heart disease, and active tuberculosis as contra-indications to stovarsol treatment; he employs various methods in selected cases—simple malarial infection, or a

subsequent course of arsenobenzol treatment, with or without malarial reinfection. Of fourteen patients who were first treated with malaria, next with prolonged stovarsal, and then again with malaria, five resumed social life (two relapsed but were cured subsequently), two recovered sufficiently to be discharged, another patient improved but died of intercurrent disease, and six patients remain stationary and are still under treatment. The author remarks that if these results are not considered so brilliant as others recorded elsewhere, the relative failure is due to the advanced stage of the disease in these patients on admission, and also to the fact that all patients whose physical health justified treatment (regardless of their mental condition) were inoculated. In spite of some inevitable failures, there have been interesting results and a notable amelioration in several cases, compared with the results obtained previously with tryparsamide. He considers that the combined method—stovarsol and malarial therapy—constitutes a real advance in the treatment of general paralysis of the insane.

452 Vaccine Treatment of Rheumatic Fever

R. SCHNAEBELE (*Acta Rheumatologica*, February, 1931, p. 35) records his observations on 94 cases of acute articular rheumatism in patients aged from 20 to 23 who have been under his care during the last three years. Of these, 69 had been treated by salicylates and 25 by Bertrand's vaccine. The results were as follows. Of the 69 patients treated by salicylates, 49 who had slight or moderate attacks made an uncomplicated recovery; 13 showed a protracted course, accompanied by persistent fever and pain, but ultimately recovered after a long convalescence and a state of pronounced anaemia, and with a heart that required watching; and 7 developed cardiac complications, or with intolerant of salicylates. Of the 25 patients treated by vaccine, all but one made an excellent recovery; six of them had previously been treated by salicylates without any result. A cure was usually obtained on the seventh to the ninth day without any cardiac complications or reaction.

453 Sodium Iodide in Herpes Zoster

E. W. RUGGLES (*Arch. Derm. and Syph.*, March, 1931, p. 472) records fifteen cases of herpes zoster in which the intravenous administration of sodium iodide appeared to act as a specific, since they all cleared up in from ten to seventeen days with rapid relief of the pain. The contents of a 20 c.cm. ampoule containing 2 grams of sodium iodide were injected intravenously on the first, second, fourth, and seventh days, though two cases required only two injections and four only three. With the exception of one case in which the condition affected the left malar prominence, all were given quartz light and a dusting powder consisting of zinc oxide (½ oz.), camphor powder (1½ drachms), corn starch (1 oz.), and morphine sulphate (3 grains), which had been the author's method of treatment for several years previously, without any apparent effect beyond some amelioration of the pain. Richmond of Texas reported some years ago a case of ophthalmic zoster which cleared up in six days following two intravenous injections of 2 grams of sodium iodide.

454 Plasmoquine in Malaria

C. R. AMIES (*Bull. Inst. Med. Research Fed. Malay States*, 1930, No. 5) reports an investigation into the use of plasmoquine in subtertian malaria, with special reference to its effect on the viability of the gametocytes of *Plasmodium falciparum*, and on the development of the crescents. To 84 patients suffering from acute malaria were given 20-grain doses of quinine hydrochloride and two-thirds of a grain of plasmoquine daily for ten days. A small control series of 20 patients received the quinine doses without plasmoquine. While it seemed clear that plasmoquine could not prevent almost fully matured crescents from appearing in the peripheral blood, it was evident that gametocytes in the early stages of development were destroyed. No support was obtained for the view that this drug intensified the action of quinine on the asexual forms of *P. falciparum*, but Amies recommends that it should be administered as a preventive as soon as the patient comes under observation, since two doses, each of one-third grain, will render non-viable all the crescents in the blood of a carrier. Furthermore, the blood remains non-infective to mosquitos for at least three days, and therefore economy can be secured with safety by administering plasmoquine on every third day. The author thinks that the dosage of quinine could simultaneously be cut down to 20 grains daily, except in the more pernicious types. No toxaemia was caused by the treatment.

Neurology and Psychology

455 Bilateral Facial Paraspasm

L. STIENON (*Bruxelles-Médical*, March 22nd, 1931, p. 604) reports the case of a man, 72 years old, who was first attacked in 1916 by crises of contraction of both orbicularis palpebrarum muscles. These lasted for some months and then stopped, but shortly afterwards facial spasm developed. Both sterno-cleido-mastoid muscles became tense and contracted; the buccinators and all the facial muscles are affected by clonic, disordered movements. The patient carries his head inclined downwards and with a slight deviation to the right, and is unable to distinguish objects without forcibly opening the eyes. The face is fixed in a permanent grimace, and the labial commissures are spasmodically drawn outwards. These spasms cannot be controlled; efforts to do so increase them, and relief is only obtained by lying down. The patient is otherwise healthy. For some years he has suffered from a ranula, and when 20 years old contracted syphilis, of which he now shows no signs. This rare condition was first described by Sicard and Hagenau in 1925, and named by them bilateral facial paraspasm. Its etiology and pathology are quite unknown; syphilis is probably not a factor. It is apparently due to a dysfunction of the central nuclei of the facial nerves, and secondarily of other motor nuclei of the mesencephalon; in the present case the spinal medullary nucleus was also involved. Stienon points out the similarity of this disease to Parkinsonism in many respects. Both maladies are incurable and do not respond to any treatment. In bilateral facial paraspasm suggestion therapy alone appears to give some transitory relief.

456 Trauma of the Brachial Plexus and its Roots

Lesions in any part of the brachial plexus tend to produce a complex clinical picture owing to its complex origin, formation, and various other factors. Each case must be considered individually. L. M. TOCANTINS (*Journ. Nerv. and Ment. Dis.*, March, 1931, p. 258) describes a case in which the plexus was injured by violent traction, and external (or backward) rotation of the arm. Undoubtedly some laceration of the fascia and epineurium of the first thoracic root, and possibly of the eighth cervical, occurred with blood extravasation and stretching of the roots between the ganglia and the lower cord of the plexus. Another case is briefly cited in which depression of the pectoral girdle due to malunion of a fractured clavicle caused strangulation of the lower trunk on the first rib, and neuralgia and motor disabilities in the region supplied by the fifth cervical roots. Tocantins remarks that defective posture, caused by the original injury, as in the present cases, may be the chief factor in perpetuating the symptoms. It may give rise to the cervical rib syndrome, even though such rib is absent. From actual experience and a study of the literature, he concludes that in all cases where the syndrome of compression, traction, and irritation of the brachial plexus or its roots exists, with or without the presence of a cervical rib, vigorous corrective treatment should be applied by braces, exercises, and electrical stimulation. If a rib resection or a decompressive operation is thought necessary, this should be supplemented as far as practicable, unless the loss of muscle tone is due to discontinuity or degeneration of the nerve supply.

457 Paralysis of the Cranial Nerves

From a study of 213 cases, LL. H. ZIEGLER (*Minnesota Med.*, December, 1930, p. 880) demonstrates the significance of cranial nerve palsy, and discusses the signs of, and the conditions that may cause, paralysis of each nerve. Complete paralysis of an isolated nerve (except the fourth) is easily recognized ; diagnosis is more difficult when more than one is affected. Much pain may exist in the distribution of a nerve such as the fifth or ninth, without demonstrable sensory or motor defects. Partial paralysis, especially of the third, fourth, and sixth nerves, has not been uncommon after influenza. Often the first symptom of nasopharyngeal tumour is pain over the distribution of the fifth nerve, which is usually involved early, the paralysis being generally confined to the side of the tumour. Retroparotid tumours commonly involve the ninth, tenth, eleventh, and sometimes the twelfth nerves, and produce the Jackson or jugular foramen syndrome. Tumours of the acoustic portion of the eighth nerve invariably involve the fifth on the side of the lesion. Syphilis and tuberculosis select especially the nerves to the optic muscles; fractures through the base the seventh and eighth nerves, though others also may be affected. In involvement of a motor nerve, a decision whether the muscle, nerve nucleus, or upper motor neurone is involved may be difficult, though the site of the lesion can often be determined. If the muscle is involved, consideration of its texture may be of value. Widely separated muscles may also exhibit signs of disease. If the nucleus is affected, atrophy and fibrillary twitchings are usually seen in the muscles supplied by the nerve. In lesions of the upper motor neurone, other signs (Hoffman's or Babinski's) are present. The patient's subjective sensations and reactions must be relied on in lesions of sensory nerves. Daily observation is most essential.

Obstetrics and Gynaecology

458 Radium Treatment of Cancer of the Cervix

O. CHIEVITZ (*Ugeskrift for Laeger*, February 26th, 1931, p. 208) reviews the results achieved at the radium station in Copenhagen in the 532 cases of cancer of the cervix admitted in the period 1921–27 inclusive. Ten of these cases were excluded from the analysis for various reasons, and two of the patients could not be traced. The condition was operable on the patient's admission (normal mobility of the uterus and no infiltration in the parametrium) in only 27 cases. There were 29 borderline cases. The 466 inoperable cases were classified in three groups, according to the degree of their severity, and as many as 336 were in the third or most inoperable group. It will thus be seen that the material consisted mostly of very advanced cases. About 60 per cent. of the operable and borderline patients came for treatment within three months of the first appearance of symptoms; this was the case in only about 30 per cent. of the inoperable cases. In about 60 per cent. of all the cases the doctor consulted had taken some effective step at once ; in the remaining 40 per cent. he had temporized. Of the 27 operable patients kept under observation for at least three years, 19, or 70 per cent., were alive and symptom-free. Of the 29 borderline patients, 16, or 55 per cent., were alive and well after three years. As for the 466 patients in one or other of the three inoperable groups, it was found that 111, or 24 per cent., were alive and well three or more years later. Of the 263 patients with an observation period of at least five years, 51, or 19 per cent., were still alive; these were patients who before radiotherapy was introduced would have been irrevocably lost. When the operable, borderline, and inoperable cases were grouped in one class, it was found that 28 per cent. survived after three years, and 22 per cent. after five years. The author points out that in a comparison of his material with that of other radium institutions the preponderance of advanced cases in his institute should be borne in mind. While he had only 5 per cent. operable cases, Heyman of the Radium Institute in Stockholm had about 22 per cent. of such cases, and in Paris 40 per cent. of Regaud's material was operable when radium treatment was instituted. It would seem that in Denmark patients suffering from cancer of the cervix do not, as a rule, come for treatment, whatever be its character, before the disease has become inoperable.

459 G. G. WARD and LILIAN K. P. FARRAR (*Surg., Gynecol. and Obstet.*, February 15th, 1931, p. 556), reporting a series of 251 cases of cervical carcinoma treated with radium, remark that the leucopenia induced by this therapeutic method necessitates steps being taken to fortify the patient's resistance against septic infection, and so against the unpleasant sequels that may otherwise be associated with the absorption of the post-radiation slough. Each case is carefully examined at monthly intervals after radiation, in order to detect signs of early recurrence in the form of small nodules or erosions, and also to deal with the possible complication of pyometra in its first stages. The authors conclude, as the result of their eleven years' experience, that in carcinoma of the cervix the best results can be obtained by employing the smaller dosages of radium (2,400 to 4,200 mg. hours), provided that the cases are re-examined at frequent intervals during the subsequent five years, and that recurrences are dealt with at once by renewed radiation. Any cachexia or anaemia should always be treated in advance by blood transfusion if the red corpuscles have fallen below 3,500,000 per c.mm. and the haemoglobin percentage below 50. They hope that high-voltage *x*-ray therapy will prove efficacious in dealing with the 40 per cent. incidence of gland involvement in the advanced cases. In all patients whose disease has progressed beyond the cervix, surgery is prohibited, they add; the authors' own results with radium have been fully equal to the surgical figures of successes, but without the high primary mortality and morbidity. They doubt whether the method of following radium treatment by vaginal hysterectomy and *x*-radiation gives results good enough to compensate for the high primary mortality of this procedure.

460 Hormone Treatment of Morbid Menstrual Conditions

According to R. KÖHLER (*Zentralbl. f. Gynäk.*, February 14th, 1931, p. 415) the ovarian preparations which were available before the methods of standardization introduced by Allen and Doisy and Zondek and Aschheim contained ovarian hormone in insignificant amounts, and owed any therapeutic potency which they possessed to their content of foreign proteins, amines, and choline-like substances. As an illustration, the paradoxical findings are reported that uterine bleedings were successfully stopped, in 105 of 142 patients, by a hormone preparation prepared and recommended for the treatment of amenorrhoea; amenorrhoea ceased in 16 out of 24 young women treated by a hormone preparation found effective in the cure of metrostaxis. Using with the recommended therapeutic purpose small doses of the newer and standardized ovarian hormone preparations, Köhler has had favourable results in cases of amenorrhoea, but he has not found the new ovarian or anterior pituitary preparations to be of use in the treatment of dysmenorrhoea. In eight out of ten hypoplastic patients with excessive uterine bleeding, cure followed treatment by the injection of insulin.

461 Preventability of Eclampsia

J. P. S. JAMESON (*New Zealand Med. Journ.*, February, 1931, p. 18), commenting on the reports of eclampsia cases for the year 1929, points out that the previous absence of albuminuria affords no certainty that eclampsia may not ensue. In six cases recently examined albumin did not appear in the urine until the day of the eclamptic attack; in one it did not appear until after the attack, and in four cases there was no albuminuria at any time. Out of a total of 84 cases during the year there was a history of previous kidney disease in 7 cases; two of these patients died, a mortality rate of 28.6, as compared with 17 per cent. among those who had not had renal trouble before the eclampsia. The author found cases

of eclamptic attacks coming on entirely unexpectedly in apparently healthy women, instances where approved treatment had failed to arrest the condition in the pre-eclamptic stage, and cases where, after an apparent yielding to treatment at first, there had been a subsequent active flare-up. He concludes, therefore, that this condition is not always preventable in the present state of knowledge.

Pathology

462 Blood Changes during Pregnancy and Parturition

R. REDING and A. SLOSSE (*Bruxelles-Médical*, March 1st, 1931, p. 503) report a series of observations on the changes in the blood reaction, calcium content, and the alkaline reserve during pregnancy and parturition. They suggest that the physiological alkalosis which occurs at the end of gestation and parturition favours the division of malignant cells. The *p*H was estimated by Cullen's colorimetric procedure, and also by Kerridge's method. The total carbonic acid and alkaline reserve were measured by the volumetric apparatus of van Slyke, and the calcium figure was calculated by the formula of Rona and Takahashi. Examinations were made of 72 normal women at monthly intervals during gestation, at the time of parturition, and during the following weeks. The readings showed that the reaction of the blood remained normal until the seventh month, when it began to move slightly towards an alkalosis at the time of parturition, falling during the following weeks and becoming normal again after six months. The alkaline reserve was lowered halfway through pregnancy, and remained so until the first week after the confinement. The calcium content was lowered progressively during the second half of pregnancy, and did not return to the normal until after parturition. Other modifications, such as the colloidal instability of the blood and changes in the surface tension and the permeability of the cellular membrane, appeared at the same period of gestation. The authors suggest that these humoral modifications may throw light on the nature of predisposition to microbial infections at the time of parturition.

463 Glutathione in Ether Narcosis

E. RUGGIERI (*Arch. Ital. di Chir.*, January 31st, 1931, p. 69) describes certain experiments he carried out with regard to the behaviour of glutathione (a dipeptide made up of cystin and glutamic acid) in relation to ether narcosis. He examined the glutathione content in 21 cases before and after operation, and found definite diminution invariably. The length of the operation had apparently little bearing on the result. He examined a few cases of operation under spinal or local anaesthesia so as to eliminate the ether factor; these also showed some diminution of glutathione, but to a far less marked extent, 0.84 as compared with 5.17 mg. after ether. It seems probable that the ether acts directly on the red corpuscles and therefore interferes with organic oxidation. This action very likely plays an important part in post-operative pulmonary affections and in acidosis; it may also partly account for post-anaesthetic hyperglycaemia.

464 The Velocity of the Blood Flow

H. L. BLUMGART (*Medicine*, February, 1931, p. 1) discusses the work of many investigators of the speed of the blood flow in health and disease, and describes the method he has personally employed to determine this velocity. The principle of the method is the injection of radium C, the active deposit of radium, into the antecubital vein, the time of arrival in the other arm being determined by a suitable detecting device. The detection of beta and gamma radiations depends on the fact that these radiations cause ionization of any gas they traverse, and the onset of ionization in a gas is an indication of the presence of the radiation of a member of the radio-active series. By means of a cloud chamber and a modification of the Geiger counting chamber it is possible to estimate the circulating time from the antecubital vein of one arm to the antecubital artery of the other arm, and also to make an automatic registration of the time of arrival of the active deposit in the right heart—" the arm-to-heart time "; the interval between the arrival of active deposit in the right heart and the arteries about the elbow is called the " crude pulmonary circulation time." The advantages and disadvantages of the histamine method are also discussed.

465 Plasma Volume and Acute Infections

E. BUCCIANTI (*Il Policlinico*, Sez. Med., March 1st, 1931, p. 138) has observed variations in the plasma volume of the circulating blood in cases of acute infectious diseases. His examinations included 16 cases of pneumonia, 9 of malaria, and 5 of acute general tuberculosis. The Congo-red method for estimating the blood volume was used. It was assumed that the total blood volume was 7 to 7.5 per cent. of the body weight, the plasma volume was 4 to 4.5 per cent., the blood cells 3 per cent., and the ratio of plasma to cells was 54 to 46 per cent. Buccianti found the greatest variations in the plasma in pneumonia; there was a marked increase during the acute phase which fell to normal or below after the crisis, demonstrating clearly a plasmatic plethora during the febrile period. A similar hyperplasmia was shown in the experimental fever produced by malaria in neurosyphilis, and also in the cases of general tuberculosis. These variations in the plasma volume are linked up with the hydrophilic capacity, and with the protein concentration. The corpuscular content of the blood was unrelated to variations of the plasma volume, but maintained in all cases a level slightly below the normal; a definite fall in the corpuscle content was noted in some cases. Hyperplasmia and a corpuscular diminution during the course of an infection represent, according to Buccianti, an adaptation of the circulating blood to the disease.

466 The Effect of Anaesthesia on Paroxysmal Conditions

D. DANIELOPOLU (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, March 9th, 1931, p. 324), alluding to the work of Troisier and Bouquien on the amelioration of bronchial asthma after general anaesthesia, suggests that spontaneous epilepsy, angina pectoris, and the gastric crises of tabes (all being conditions associated with hyperexcitation of the sympathetic system) may similarly be influenced. Surgical measures for the relief of the last three conditions have been attended by some degree of success, permanent relief being obtained in some cases; this occurs in spite of the fact that the main object of the operations —namely, complete destruction of the part of the sympathetic system involved in the pathological reaction—is seldom achieved. Danielopolu believes that anaesthesia (whether general or spinal) associated with operative shock has a great influence in lowering the sympathetic tone; he ascribes to this the cessation of symptoms so often observed for seven to fifteen days after an operation, whether or not permanent relief ensues. He considers that the stage following this quiescent one, when attacks may recur for a while, is due to traumatic excitation of the sympathetic, and is comparable with post-amputation neuralgias. The lowering of the tonus is well shown by a measurable fall in the blood pressure. He is inclined to ascribe any permanently good results not to complete destruction of part of the reflex arc, but to a temporary break in the vicious circle by the lowering of the tonus by the anaesthesia and shock. As an example of the beneficial results obtained by such a break in a vicious circle, he describes the great reduction in the frequency of attacks of angina obtained after local anaesthesia of the intercostal nerves; if only one expected attack can be averted, the hyperexcitable state of the sympathetic system is reduced. Referring to the cessation of asthmatic and epileptic attacks during febrile states, he concludes that the sympathetic tonus is lowered for the time being, the failure of the subject to react to subcutaneous doses of adrenaline being an index of the fall.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

467 Acute Epidemic Serous Meningitis

H. SCHNEIDER (*Wien. klin. Woch.*, March 13th, 1931, p. 350) refers to several outbreaks of this disease in Germany, chiefly among children, during the summer and autumn of the last four years. The general constitutional symptoms are severe, but a lumbar puncture yields sterile fluid under increased pressure. The prognosis is favourable. The chief symptoms of this "aseptic meningitis" are its acute onset, with typical meningitic symptoms; the slightly turbid cerebro-spinal fluid, due to leucocytosis; the sterility of the fluid on direct examination and on culture; the relatively short course, rarity of complications, and the favourable prognosis; the absence of the ordinary causes of meningitis, such as otorrhoea, the exanthemata, and trauma; and the absence of epidemiological connexion with infective meningitis. Schneider has seen 24 cases since 1927; in 1928 twelve children were under treatment in Leipzig, and in 1930 thirteen children were attacked in Düsseldorf. The disease commenced with sore throat, headache and malaise, nausea and vomiting. Severe cases showed all the classical symptoms of meningitis; milder cases exhibited only a slight Kernig reaction: nuchal rigidity was not always present. One patient had headache and vomiting three weeks before admission; this was followed by the gradual onset of meningeal symptoms. In every case the blood pressure was normal, and no somatic changes were found. The tendon reflexes were brisk; oculomotor symptoms and papilloedema occurred occasionally. The cerebro-spinal fluid pressure was increased. The albumin reaction was positive, with an increased cell count which became normal during convalescence. The fever terminated by crisis or lysis, but in the severe relapsing cases the fever was intermittent. The prognosis is invariably favourable, according to Schneider; in one case ocular symptoms persisted, but complete recovery followed. The youngest of his patients was 14, and the oldest 72; the majority were healthy middle-aged adults; thirteen were females, and eleven were males. The Wassermann and tuberculin reactions were invariably negative. Animal experiments suggest that the so-called "serous meningitis" is an abortive form of epidemic meningitis.

468 Scarlet Fever in Sweden

A. LICHTENSTEIN (*Finska Läkaresällskapets Handlingar*, February, 1931, p. 89) records observations made at the Fever Hospital in Stockholm. Since the middle of last century, when thousands died every year from scarlet fever in Sweden, there has been a marked decline in its severity, the number of deaths from this disease in 1929 being only 91. The incidence of the disease has not, however, showed a corresponding decline. In 1920, for example, there were 9,750 cases and 190 deaths—a mortality of 2 per cent. In 1929 there were still as many as 8,579 cases and 91 deaths—a mortality of 1.1 per cent. During the last few years the ratio of relapses or recurrences has greatly increased, from an average of about 1 to 10 per cent. in 1929. This high recurrence rate may be connected with the present mildness of the disease, which effects a slower and less complete immunity than before. Haemolytic streptococci were found in 83 per cent. of about 3,000 patients on admission, and in 59 per cent. on discharge. The Dick tests carried out on about 2,700 persons of various ages yielded a curve corresponding exactly with that of the incidence of scarlatina at different ages in Stockholm. Of the 546 men in a regiment subjected to the Dick test during an epidemic of scarlatina in Stockholm, 40 per cent. gave a positive reaction; 24 of these positive reactors developed scarlatina during the following weeks, while not one of the negative reactors did so. The Dick test was repeated weekly in 575 cases of scarlatina, and was positive in just over 60 per cent. in the first week; some 10 per cent. continued to give a positive reaction. The serum of convalescents was given in more than 700 severe and moderately severe cases with good results. Antitoxic scarlatinal antistreptococcal serum has been given since 1925 in 600 to 700 severe and moderately severe cases in doses of 10 c.cm. or thereabout by intravenous injection. The results were excellent in uncomplicated cases, but this treatment seemed to have little effect on already existing complications.

469 Paratyphoid B Fever with Lung Complications

B. EDINGER (*Med. Klinik*, March 6th, 1931, p. 352) records two cases of paratyphoid B fever in men, aged 32 and 25 respectively, complicated by pleurisy with effusion. *B. paratyphosus* B was cultivated from the effusion as well as from the sputum in both cases. The disease ran a relatively mild course, and recovery ensued.

Surgery

470 Uraemia Following Blood Transfusion

Halter of Vienna has recently described a case of ruptured tubal pregnancy in which, after transfusion from a Group IV donor to the Group II patient, there was temporary improvement, but this was followed in twenty-four hours by icterus, oliguria and haemoglobinuria, and finally uraemia. P. WEISS (*Zentralbl. f. Chir.*, March 14th, 1931, p. 676) describes two further cases in which uraemia followed blood transfusion; in these cases, however, there was no haemolysis, and in one there was evidence of pre-existing nephritis. One was a Group II patient transfused from Group IV, and in the other case both donor and recipient belonged to Group III. Halter explained his case by assuming that the patient's corpuscles had been haemolysed by the serum of the donor, there being a severe anaemia to start with, and perhaps a strong agglutination titre in the donor's serum. Weiss considers that the evidence of haemolysis is insufficient; he thinks the explanation is that, as in his own cases, the kidney had been damaged by anaemia or infection, the excretion of protein from the donor's serum increasing the damage. In his opinion kidney disease contraindicates transfusion in such cases.

471 Urethral Syphilis

G. PINI (*Urol. and Cut. Rev.*, March, 1931, p. 182), who reports an illustrative case, states that numerous examples have been recorded of syphilitic lesions of the urethra. According to Casoli, chancre of the meatus occurs in 7 per cent. of all cases of syphilis. Endo-urethral chancres, even to the depth of 7 centimetres, have been described by Albarran, Ferrari, Jullien, Gebert, and Winternitz. On the other hand, cases of secondary papular syphilis of the urethra are very rare. This localization has been presumed in the older descriptions from the presence of a catarrhal discharge, from the urethra in syphilitic patients, which disappeared under specific treatment. But the demonstration of specific lesions in the urethral canal dates only from the use of the urethroscope and the discovery of the spirochaete in the urethral discharge. Late manifestations in the form of nodular, ulcerative, and gummatous lesions may involve the meatus, or, more rarely, the first part of the pendulous urethra, as reported by Johnston, Renault, Zeissl, and La Mensa. Pini's patient was a man, aged 24, who some months after contracting a characteristic primary lesion in the balano-preputial sulcus developed soreness in the urethra, pain on micturition and ejaculation, and slight urethral discharge. No gonococci were found, but on urethroscopic examination an eroded and tumid area indicating papular syphilis of the urethra was detected.

472 Injection Treatment of Inguinal Hernia

R. WOLFE (*Med. Journ. and Record*, March 4th, 1931, p. 243) discusses the injection treatment of reducible inguinal hernia from an experience of 22 cases. After skin preparation as for a major abdominal operation, and with the patient in a moderate Trendelenburg position, the hernia is completely reduced; 2 c.cm. of a 2 per cent. procaine solution is then injected into the canal, about half an inch below the internal ring, and lateral to the spermatic cord. With the needle still in position, 2 c.cm. of an alcoholic solution of catechu, krameria, monesia, *Vaccinium myrtillium*, *Rosa centifolia*, and *Rosa canina* are injected very slowly, taking from three to five minutes, and the needle is rapidly withdrawn. The patient is brought to a horizontal position and a truss is temporarily fitted over the area of the internal ring. Satisfactory results were obtained in 19 cases (86 per cent.). All the cases were ambulatory, and the hernias had existed from six months to fifteen years, with an age incidence of 21 to 81. The average number of injections was eight, the minimum being two and the maximum nineteen; no morbidity or mortality occurred in over 250 injections. The method should be restricted to cases of indirect inguinal hernia, and is contraindicated in cases of sliding or irreducible hernia. The author concludes that the procedure is worthy of further investigation, since satisfactory results have been obtained without any ill effects and without the necessity for treatment in hospital. It should be of special value in cases of poor surgical risk, old age, or refusal of radical cure by operation.

473 Radical Cure of Hallux Valgus

A. L. SORESI (*Surg., Gynecol. and Obstet.*, March, 1931, p. 776) describes a procedure by which hallux valgus, associated with a bunion, may be radically cured, even when the bursa has been infected; he resects the head of the metatarsal bone, and preserves the articular surface, thus reconstructing a normal phalango-metatarsal articulation. The head of the metatarsal is exposed, and the periosteum from the middle of the bone to about 1/4 inch from the articular surface is incised. The periosteum is separated around the bone, and the articular surface is detached. This can be done very easily if some bone is left attached to the articular surface itself; the spongy bone offers little resistance to a sharp instrument. The head of the metatarsal is then excised, sufficient bone being removed to straighten the toe. The excess of skin is removed with the bursa, and the wound is closed. A splint is applied, and the wound is covered by gauze impregnated with glycerin or alcohol. The toe is kept at rest until any inflammation has subsided; passive and active movements are then started. Soresi claims that the operation is anatomically and physiologically correct; that the results are functionally satisfactory is demonstrated by a case which he reports.

474 Renal Tuberculosis

R. GUTIÉRREZ (*Journ. d'Urol.*, February, 1931, p. 126) states that there are two different forms of renal tuberculosis, the medical and the surgical, but discusses the diagnosis and treatment of the latter only. He bases his conclusions on 65 nephrectomies, three of which are here recorded; they were performed at a New York hospital during the last ten years. At its commencement renal tuberculosis presents no well-marked anatomical lesion in the kidneys, but only a nephritis. The spread of the disease is at first almost always by the papillae, and dilatation of the calyces ensues by an ulcerative process which becomes ulcero-caseous or ulcero-cavernous. Simple nephrectomy will cure early cases; consequently early recognition is advisable, and in order to avoid diagnostic errors all exploratory measures (including cystoscopy and pyelography) should be employed. When the disease is advanced with involvement of the ureter, Gutiérrez advises uretero-nephrectomy, performed in two stages. The majority of post-operative complications are due to a septic ureteral stump left at a nephrectomy. Regional is preferred to general anaesthesia; the author uses 1 per cent. procaine. Patients should be given post-operative medical and hygienic treatment, and should lead strictly quiet lives, preferably in a sanatorium, for many years.

475 Arborescent Lipoma of the Tendon Sheaths

P. VALDONI (*Chir. d. Org. di Movimento*, February, 1931, p. 509) records a rare case of arborescent lipoma occurring in a lad, aged 19, who had suffered from pleurisy two years previously. In January, 1929, he presented a somewhat elastic swelling on the dorsum of the left hand and a similar smaller swelling on the right hand. In view of the history of pleurisy, a provisional diagnosis of tuberculosis was made. The swelling on the left hand was punctured, and some of the fluid was injected into a guinea-pig, but no tuberculous infection followed. Since the tumour did not disappear, it was excised; it was partly fatty, and with its many vessels almost resembled a naevoid condition. The right hand was operated upon in May; recurrence necessitated a second operation. Similar growths appeared in the sheaths of the peroneal tendons, but it was not considered advisable to remove them. At the first operation the swelling was solid and of a brownish-red colour; at the second it was cystic and arborescent. The recurrence was probably due to incomplete removal at the first operation. When the patient was seen seven months later he had complete functional use of both hands, and there was no sign of local recurrence. The condition of the feet had not become worse.

Therapeutics

476 Treatment of Spasmodic Croup

L. P. CRAWFORD (*New England Journ. Med.*, February 26th, 1931, p. 437) maintains that in the treatment of spasmodic croup the use of drugs and medicated vapours is erroneous and unsatisfactory, the spasm being, he thinks, a toxic manifestation of the absorption of colonic toxins from the small intestine. He found acetone in the urine of all patients with spasmodic croup, and also areas of dullness and tympany over the colon. The removal of impacted faeces which have caused gas to become collected in pockets in the colon relieves all the croup symptoms in a few minutes, because in this way the pressure of gas is taken away from the caecal side of the ileo-caecal valve, the strained valve having previously allowed the bacterial and faecal contents of the caecum to regurgitate into the small intestine, whence the absorption of toxins resulted. Three small soapy water enemas effect this usually; more than half a pint should not be given to a child, or more than a pint to an adult at any one time. The elevation of the syringe should not exceed twelve inches. As soon as the first enema has been expelled the second is given, and so in the case of the third. Neither laxatives nor large enemas should be administered, because the first forces and the second washes additional toxins into the small intestine in cases where the musculature of the colon is already incapacitated by the stretching due to pockets of gas. After appropriate treatment in this way the acetonuria vanishes, and the croup spasms do not recur on the subsequent days.

477 Soya Bean as a Milk Substitute

N. FOUND (*China Med. Journ.*, February, 1931, p. 144) discusses the food value of soya bean, which was not studied scientifically till 1900, though known in China since the time of Confucius. Experiments in infant feeding made by Ernest Tso in 1928 proved that soya bean flour, which has a protein content of 44 per cent., provides proteins easily digested by young infants, and is capable of producing continuous growth, but it is deficient in calcium, sodium, and chlorine, as well as in vitamins other than A and B. At the Evangelistic Centre, Seoul, large numbers of children have been satisfactorily fed on "soya bean milk" at a cost of less than one-third of that of condensed-milk feeding. The "milk" is prepared as follows. The beans are baked overnight in three times

their weight of water. The shells are removed in the morning, and the beans are ground in a mill, then boiled for five minutes, and filtered through a sieve. To every 1,000 grams of the filtrate there are added 20 grams of starch (previously made into a paste with some of the filtrate), 60 grams of sugar, 1.5 grams of calcium lactate, and 1 gram of common salt. This mixture contains protein 4.4 per cent., fat 1.8 per cent., and carbohydrate 1.5 per cent., with a *p*H of 6.8. The addition of cod-liver oil is essential.

478 Sugar in Therapeutics

H. PRIBRAM (*Forsch. und Fortschr.*, March 10th, 1931, p. 118) states that intravenous injection of grape sugar produces the following effects. (1) Strong solutions can remove water from the tissues, especially in cases of oedema. The success of this treatment is best seen in pulmonary oedema, where sugar may save life. The water withdrawn from the tissues is finally excreted by the kidneys. (2) This discharge of fluid from the tissues into the blood stream may also carry off metabolic waste products which have accumulated in the tissues. (3) As Pribram showed many years ago, sugar has an antidotal action, not only in the cases of poisons introduced from without, such as narcotics, veronal, salvarsan, and fungi, but also endogenous intoxication, such as uraemia. (4) Owing to the close relation between sugar and the liver, the combination of sugar with insulin therapy brings about good results in a number of diseases of that organ. (5) In other diseases also in which there is a reduction in the normal sugar content, especially as the result of excessive administration of insulin, sugar is beneficial. (6) It has a good effect on the heart and peripheral vascular system, so that it is useful in myocardial diseases and in many cases of high blood pressure. Sugar, therefore, whether administered by mouth, enema, or intravenous injection, may be of value in a number of different diseases, such as intoxications, infectious diseases, and disorders of the heart, kidneys, metabolism, lungs, and intestines; in the absence of diabetes its administration is absolutely harmless.

479 Dietetic Treatment of Obesity

In the last two years E. MOELLER (*Acta Med. Scand.*, February 18th, 1931, p. 341) has treated 46 patients suffering from obesity (excluding cases of diabetes, nephrosclerosis, myxoedema, exophthalmic goitre, and circulatory failure). Each received the same diet, yielding 950 calories: protein, 160; fat, 300; and carbohydrates, 490. Black coffee, broth, and 10½ oz. of vegetables were given daily, with 1¼ oz. protein. Water and salt were not restricted. Although the diet contains a fair amount of carbohydrate, the quantities of fat which must have been oxidized daily in many cases are so large that ketosis might have occurred, but only eight patients showed slight intermittent acetonuria. The ammonia output was always normal. Certain variations in weight reduction were attributable to the patients' departing temporarily from the prescribed dietary. The author argues that when normal or emaciated patients are underfed, the basal metabolism is reduced considerably. If this occurred in cases of obesity, it would be a strong argument in favour of thyroid treatment, but no significant change in the basal metabolism was observed. If the metabolism is reduced materially, there should be diminished weight reduction. When an ordinary patient with uncomplicated obesity received this diet an average weekly loss of 2⅝ lb. occurred, although in exceptional cases the reduction was 7 oz. only. Whenever the reduction was under 14 oz. there was reason to suspect infraction of the dietary. No undesirable results of prolonged under-nutrition were observed; a minority complained of hunger, but they admitted to feeling fitter on discharge than on admission. In three cases the reduction was between 31 and 25 lb.; in eleven cases, between 25 and 12½ lb.; and in twenty cases, between 12½ and 6½ lb. The average reduction for all patients was 10½ lb. Of 17 hyperpiesic patients, eight had a normal systolic pressure on discharge. The duration of treatment averaged 54 days.

Anaesthetics

480 Regional Anaesthesia

The employment of regional anaesthesia is strongly commended by V. E. WAN (*Nat. Med. Journ. of China*, December, 1930, p. 730), who records an analysis of 2,555 cases; of these 1,817 were field-block (with or without local infiltration), 85 were femoral, 361 sacral, 236 spinal, and 56 brachial block. There was almost invariable and complete success with field-block, femoral, and sacral anaesthesia. With spinal anaesthesia 90 per cent. of the cases were successful, while with brachial block 84 per cent. were considered satisfactory. There was no mortality, and the incidence of untoward sequels was so small that the author thinks that it constitutes no contraindication. Among the abdominal operations in which field-block was used, with or without local infiltration, were appendicectomy, exploratory coeliotomy, enterostomy, and drainage for generalized peritonitis or localized abscess. In thoracic surgery local infiltration was combined with intercostal nerve-block. In 81 per cent. of the spinal anaesthesia cases the success was considered perfect; in 9 per cent. it required supplementing with general anaesthesia; and in 10 per cent. it proved a complete failure.

481 Ethylene Gas Explosions

F. D. JOHNSTON and H. CABOT (*Arch. of Surg.*, February, 1931, p. 195) enumerate recommendations which they believe will provide a safe and workable system for the prevention of explosions during the use of ethylene-oxygen mixtures. Any electrical equipment or other apparatus producing heat must be absolutely prohibited in the vicinity of the anaesthetic mechanism. Static sparks outside the machine should be prevented by sheet metal flooring, in contact with cables to the ethylene-generating apparatus. The bare rubber rebreathing bag renders sparks possible, and if the introduction of a small quantity of a radio-active substance is not effective, a special manometric device is required; a diagram of a possible one is supplied. The exhaust gases must not be poured out into the operating room, and some device such as that suggested by Salzer must be installed. An electrical connexion betwen the patient and the metal operating table is essential. During the cold months of the year it is also advisable to make certain that the system is actually eliminating the danger from static electricity.

482 Amytal in Spinal Anaesthesia

H. KOSTER and L. P. KASMAN (*Med. Journ. and Record*, February 18th, 1931, p. 167) advocate the administration of amytal (sodium iso-amyl-ethyl-barbiturate) as an adjunct to spinal anaesthesia as being of value in eliminating the fear factor in apprehensive patients. The drug is supplied as crystals in sterile ampoules in 1 gram doses with an accompanying ampoule of 10 c.cm. of triply distilled sterile water for preparing a solution for intravenous injection. The patient having been told that it is necessary to obtain a drop of blood from a vein for examination, the solution is slowly injected at the rate of 1 c.cm. per minute. During its administration the patient falls into a sleep which is completely amnesic without any preceding nausea, laryngospasm, or excitement; the sleep becomes deeper as the injection continues. With large doses there is some cyanosis, and if the injection is made too rapidly a period of apnoea may occur. No preliminary narcotic or other preparation is necessary. After removal to the theatre, novocain is given intraspinally, and the operation can be performed in a moderate Trendelenburg posture with complete muscular relaxation and the elimination of physical and psychic shock. Under this anaesthesia 139 operations, most of them major, were performed, five being under amytal alone; no patient died. After the operation the patients usually slept for from six to twelve hours; there may be considerable restlessness, but less morphine is required post-operatively to keep them comfortable than is the case with those who receive spinal anaesthesia only.

Obstetrics and Gynaecology

483 Protein Therapy in Salpingitis

J. S. DIASIO (*Med. Journ. and Record*, March 18th, 1931, p. 291) reports his experience, in 101 patients, of the non-specific treatment of gonococcal salpingitis by intradermal injections of aolan, a bacteria- and toxin-free milk, in contradistinction to comparatively large doses intramuscularly. The procedure is based upon the observation that stimulation of the skin cells intensifies the autonomic changes in the internal organs that apparently produce the therapeutic effect. At one sitting 1 c.cm. is injected in three separate wheals, using 0.3 c.cm. of aolan for each. Daily injections are given, six constituting a course, which is followed by a rest period of several days; no injections should be given during menstruation and for two days after. In the majority of acute and subacute cases one course was sufficient, but chronic cases required two or more. Contraindications are syphilis, alcoholism, diabetes, myocardial insufficiency, liability to serum sickness, asthma, urticuria, epilepsy, and serious nervous conditions. All the author's patients became symptomless, and 43 were so markedly improved that they were considered cured after observation for ten months. Adjuvant local treatment consisted of application of 20 per cent. mercurochrome to the cervix uteri, vaginal insufflation of kaolin and sodium bicarbonate, hot douches, and as much recumbent rest as possible. Improvement in the condition was determined by vaginal examination in each case.

484 Pulmonary Complications of Pregnancy

F. H. PRATTEN (*Canadian Med. Assoc. Journ.*, March, 1931, p. 391) reviews the various pulmonary complications of pregnancy, with special reference to tuberculosis. He concludes that tuberculous women should be advised against marriage, unless the disease has been quiescent for two years, and that married tuberculous women should be given detailed instruction in suitable methods of preventing conception. Should they become pregnant, the induction of abortion during the early months of pregnancy is indicated and justified if the lesion is active, and particularly where there is laryngeal involvement. When pregnancy is permitted to continue, the most careful prophylactic measures are essential. Nursing the child should be invariably prohibited. The most unfavourable prognosis should always be given in cases showing marked constitutional symptoms which are out of proportion to the physical findings, and especially when there are laryngeal symptoms. Temporary improvement during gestation should not be rated too highly, since there is often a serious retrogression subsequently which ends in death. Pneumonia during pregnancy is considered by the author as the second most serious pulmonary complication, resulting as it does in deficient oxygenation both of the mother and of the foetus. Pneumonia causes interruption of pregnancy in 40 per cent. of cases in the first half, and of 60 per cent. in the second half. The maternal mortality is high. Pre-existing emphysema is aggravated by pregnancy; it may cause abortion owing to interference with the oxygenation of the foetal blood, or it may necessitate the induction of premature labour because of the serious condition of the mother.

485 Pregnancy and Tuberculous Laryngitis

P. LARREGLE (*Rev. Med. Latino-Americana*, January, 1931, p. 515), who records an illustrative case, states that tuberculous laryngitis is generally regarded as invariably fatal when it develops as a complication of pregnancy. His case, however, which occurred in a primipara aged 19, was exceptional. Treatment by absolute vocal rest, insolation of the larynx, injections of sanocrysin, and artificial pneumothorax enabled the patient to give birth to a healthy child at full term; two and a half months after delivery she completely recovered from her pulmonary and laryngeal lesions.

Pathology

486 Bovine Tubercle Bacilli as a Cause of Phthisis

B. LANGE (*Zeit. f. Hyg.*, March 18th, 1931, p. 298) records four cases of pulmonary tuberculosis in adults from which he was able to recover a tubercle bacillus of bovine type; in one case the bovine were mixed with human bacilli. Three of the patients had worked in close contact with cows, and it was this circumstance that led to the typing of the bacilli being carried out. Since there was no history of tuberculosis, nor of exposure to familial infection during childhood, the author considers that a primary infection had occurred in adult life. This view is to some extent supported by the fact that in one case, in which a careful post-mortem examination was made, no evidence of tuberculous lesions in the alimentary tract or its regional lymphatic glands could be found. Since tuberculous cows frequently cough up a large amount of infective material it is considered probable that the patients received a primary infection by the respiratory route with bovine bacilli. The disease due to the bovine type does not seem to be especially mild; two of the patients died with extensive pulmonary lesions. Altogether five cases of bovine infection of the lungs in adults have now been recorded in Germany.

487 Influence of Soap on Antiseptics

B. HAMPIL (*Amer. Journ. Hygiene*, March, 1931, p. 623) recalls his previous demonstration that certain highly germicidal phenol derivatives might be rendered inert by the addition of small quantities of soap; he now reports further investigations of a similar kind in connexion with mercurial antiseptics. He found that the antibacterial power of mercuric chloride against virulent staphylococci at 37° C. was remarkably increased by the addition of 1 per cent. or more of soap. Small amounts of soap gave irregular results, and larger amounts than 1 per cent. had no appreciably enhanced effects. The time of exposure required to bring about the result was five minutes, whether the organisms were exposed to the soap or to the mercurial solution first. The addition of soap to strong solutions of the germicide did not shorten the time for complete sterilization. Soap did not enhance the germicidal action against the members of the *coli*-typhoid groups, or against dysentery bacilli, *B. pyocyaneus*, and *M. catarrhalis*; indeed, in these cases it protected them for a short time against the mercurial salt. Mercuric bromide and nitrate were similarly strengthened in their germicidal action on *Staphylococcus aureus* by soap, but not on other organisms. If added to mercuric cyanide and *o*-chlor-mercuric phenol, soap increased the disinfectant action of these compounds three or four times, without any special selective effect for *Staphylococcus aureus*.

488 Acid Production by Brucella Strains

S. H. MCNUTT and P. PURWIN (*Journ. Infect. Dis.*, March, 1931, p. 292) have studied the production of acid in carbohydrate media by organisms of the Brucella group. In ordinary peptone water containing dextrose, levulose, galactose, xylose, or arabinose the medium becomes alkaline, even though chemical estimation shows that the sugars have been partly utilized. Apparently the acid produced by the disintegration of the sugar is more than neutralized by the alkali formed from the peptone. If the sugars are added to a nutrose medium, or, even better, to a nutrose medium containing 10 per cent. raw cow serum, a definite acidity is produced in the presence of arabinose, and a slighter but usually still definite acidity in the presence of xylose; with dextrose, levulose, and galactose the results are variable with the same strain from time to time. In media containing a sugar as the sole source of carbon, growth may occur in the presence of arabinose or xylose, but not in that of the other sugars. The acid production from arabinose and xylose is apparently of no value in differentiating the members of the Brucella group; forty-three strains from various sources were tested, but no satisfactory classification could be made by this method.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

489 Hepatic Insufficiency

M. LABBÉ (*Ann. de Méd.*, February, 1931, p. 97) points out that, clinically, functional disorders of the liver play a very important part, greater perhaps than do anatomical lesions, and that a systematic examination and study of its functions will reveal hepatic insufficiency in many morbid conditions in which it is unsuspected. The biliary, glycogenic, proteolytic, and haemopoietic functions of the liver, and their pathological variations, are described. Many urine and blood tests are enumerated, and their significance in revealing hepatic insufficiency is demonstrated. One test alone is not an index of functional disorder, and many must be performed in order to reach a diagnosis; the liver, pancreas, and endocrine glands co-operate in the glyco-regulating function of the body, hence glycosuria of itself does not indicate hepatic trouble, as it does when associated with urobilinuria and cholaluria. Moreover, tests of the primordial hepatic functions (biligenesis, the metabolism of the carbohydrates, albumins or fats, and coagulation of the blood) are the most important. In conclusion, Labbé cites and briefly discusses the various conditions in which there is an underlying, unsuspected hepatic pathogenesis which can be demonstrated only by a complete examination such as is described.

490 Prognosis in Spasmophilia

U. HJÄRNE (*Acta Paediatrica*, March 15th, 1931, p. 281) states that the view has been maintained in the German paediatric literature of the last twenty-five years that the majority of children who have shown signs of spasmophilia, such as convulsions, laryngospasm, or tetany, subsequently present an abnormal psychical development and tend to suffer from neuropathy, psychopathy, and imbecility. A close examination, however, of the investigation on which this view was based revealed that only a small proportion of the formerly spasmophilic children had been subsequently examined. Hjärne in 1930 examined 29 children who had been treated for spasmophilia at the Upsala University children's clinic from 1916 to 1924, and found that their physical and mental development was completely normal apart from the teeth, which were almost always characterized by considerable caries, while half the cases presented hypoplasia of the permanent incisors.

491 Calcareous Aortic Valvular Disease

H. M. MARGOLIS, F. O. ZIELLESSEN, and A. R. BARNES *Amer. Heart Journ.*, February, 1931, p. 349) have made an etiological, pathological, and clinical study of calcareous aortic disease occurring without significant degrees of involvement of other valves. They have investigated 42 consecutive cases coming to necropsy during the past eight years. In only three of these patients had there been a history of rheumatism, while only four showed definite or suggestive evidence of syphilitic infection. Males were affected four times more often than females, and 35 of the patients were more than 50 years old on first presenting themselves for examination. Only six patients complained primarily of symptoms referable to the heart. Clinical evidences of peripheral arterio-sclerosis and of cardiac enlargement were found in about half the cases. Hypertension was noted in twelve patients. The signs on auscultation were very variable. Abnormalities in the electrocardiogram were comparatively uncommon; inversion of the T-wave in a significant lead was observed in five, and left ventricular preponderance in nine patients. Roentgenograms usually confirmed the clinical evidence of cardiac enlargement. Except for occasional slight atheroma of the mitral cusps, pathological changes were found in the aortic valve alone. These consisted chiefly in calcareous deposits in the valve leaflets producing distortion and stiffening with varying degrees of stenosis or insufficiency, or both. In several instances intimal proliferation of the arterioles of the aortic ring was observed, and hyalinization extended into the aortic tissues from these vessels. It is thought that these obliterative changes in the aortic ring result in ischaemia of the valve cusps, and that degenerative changes, with subsequent calcification, ensue. In a few cases, both clinical and pathological data pointed to a rheumatic origin, or to an inflammatory process involving the nutrient arteries of the aortic valves.

492 E. L. TUOHY and P. F. ECKMAN (*Minnesota Med.*, April, 1931, p. 289) report cases of gross enlargement of the heart associated with local lesions in the aortic cusps which induced marked aortic stenosis. They consider that it is insufficiently realized that the appearance of calcareous nodules in these valves can produce very large hearts with thick dilated left ventricles, even though no outward signs or symptoms of the process are observable. This local process may develop much earlier than the usual atheromatous series of changes, and is often seen most typically in patients outside the age limit of rheumatic cardiac complications. With the syndrome there are associated no inflammatory reactions, but it can so modify the base of the aorta as to give rise to typical angina without the characteristic narrowing along the course of the coronary arteries. Such nodular lesions are said to be curiously unlike the ordinary intimal atheroma commonly seen within the endocardium and intima of the aorta, the calcification process being one of media degeneration and infiltration. If death does not supervene from other causes, this lesion can lead to an extreme degree of aortic stenosis with great enlargement of the heart. The authors urge the importance of more careful attention to the determination of the heart outline in all suspicious cases, and suggest that it is unwise to exclude the possibility of aortic stenosis even in the absence of multiple involvement of the valves and of a rheumatic or syphilitic history.

Surgery

493 Renal Carbuncle

B. LIPSHUTZ (*Annals of Surgery*, March, 1931, p. 766) describes carbuncle of the kidney as a rare but definite lesion, which is probably more common than is generally believed. The primary focus is usually some staphylococcal infection of the skin, such as carbuncle or hard furuncle, or the condition may follow mastitis, osteomyelitis of the finger, angina, or even influenza. The average interval between the healing of the primary infection and the appearance of a renal or pararenal infection is from three to five weeks. In some cases trauma has been noted as a definite cause. The infection begins in the interstitial portion of the cortex of the kidney, and is usually of haematogenous origin. The first change produced in the kidney is an infarct, which is always directed towards the cortex of the kidney, with the apex towards the pelvis. This pyramidal-shaped infarct is soon converted into a suppurative focus. The symptoms are those of a mild or severe septicaemia, with a fluctuating temperature, and pain which varies in intensity from a dull ache to a sharp localized pain. Tenderness is most acute in the region between the twelfth rib and the muscles of the loin, and there may be some restriction of the respiratory movements of the affected side. The most common urinary finding is a trace of albumin, a few red cells, and some leucocytes. A correct diagnosis is seldom made before operation. When the other kidney

is normal, nephrectomy is the operation of choice, and may be performed successfully even though there is toxic nephritis in the other kidney. If the infection is limited to a small area of the cortex, resection of the infected kidney focus may be feasible. The infarct in the early stage of the infection can easily be removed, and the cavity be packed with gauze, the wound being left open to prevent an extensive area of infection. The prognosis is good when the diagnosis is made early, and the operation is carried out while the infection is in its initial stage, consisting only of a circumscribed zone of multiple suppurative foci.

494 Surgical Treatment of Raynaud's Disease

T. MARIO (*Rif. Med.*, February 9th, 1931, p. 203) reports a case of Raynaud's disease treated by sympatheticectomy of the periarterial branches, and later by arterio-venous anastomosis; the condition began with an attack of rheumatic polyarthritis fourteen years previously. In spite of various medical applications signs of gangrene appeared in the toe, and periarterial sympathectomy was performed. This was followed by considerable improvement for a short time, but eventually the disease spread and amputation became necessary. Three years later similar symptoms began to appear in the other foot, and as no improvement followed the usual treatment, the author tried the effect of arterio-venous anastomosis, with the idea of improving the circulation. This operation gave rise to considerable relief, but after about a month the condition became as bad as before. The author discusses the various theories as to the causation of Raynaud's disease and the different suggestions as to treatment. The temporary improvement following arterio-venous anastomosis is, he thinks, probably due to passive hyperaemia. The effect of cold or hot applications may help in differentiating gangrene due to Raynaud's disease from that caused by arterio-sclerosis; in the first, warmth does good, while in arterio-sclerosis cold applications are of more use. In spite of occasional cures, none of the various medical or surgical treatments can be relied on as certain or specific.

495 Parathyroid Tumour and Generalized Fibro-cystic Osteitis

I. SNAPPER (*Bruxelles-Médical*, March 15th, 1931, p. 585) reports a case in which a parathyroid tumour was found to be responsible for symptoms of "osteomalacia." Five years previously the patient, a man aged 56 years, had complained of a slight stiffness of the legs which increased to actual pain. The patient had lost weight, and for a year he had been bed-ridden and cachectic. A month before being seen by Snapper he had had a spontaneous fracture of the right femur. Radiographs showed an extreme decalcification of the pelvis and femora, which explained the previous diagnosis of osteomalacia. The patient appeared to be in a desperate state; the blood calcium was 20–23 mg. per cent. A radiograph which had been taken in Antwerp in 1925 showed the characteristic changes of a cystic fibrositis of the second metatarsal and of the left glenoid cavity. It appeared probable that the patient was suffering from Recklinghausen's disease; the high blood calcium figure pointed also to the presence of a tumour of the parathyroid. An adenoma 2.5 cm. by 1.5 cm. was in fact removed from the left parathyroid. The result was good; sixteen months after the operation the patient could walk with a stick for one hour, had no pain, and felt himself cured. Radiographs showed a marked recalcification of the pelvis and femora. Immediately after the operation, owing to the rapid fall in the blood calcium, injections of parathyroid extract and intravenous injections of calcium were necessary. Later, oral administration of calcium lactate sufficed to maintain the equilibrium of calcium metabolism. The markedly good results of the operation proved that the removal of a parathyroid adenoma exercised a salutary influence on the Recklinghausen's disease even when the late stage of pseudo-malacia was present. Snapper suggests that there may be some connexion between parathyroid tumour and true osteomalacia.

Therapeutics

496 Malaria Therapy in Neurosyphilis

In a survey of the medical aspects of malaria therapy in neurosyphilis G. S. JOHNSON and R. A. JEFFERSON (*Journ. Nerv. and Ment. Dis.*, April, 1931, p. 405) enumerate the contraindications as: the existence of rapidly progressive paresis and far advanced tabes, with incontinence and severe ataxia; juvenile general paralysis; primary optic atrophy; severe cachexia, or the presence of such systemic diseases as diabetes, nephritis, and active pulmonary tuberculosis; and a history of attacks of heart failure in a case presenting clinical evidence of morbus cordis. The authors agree that high fever is not the primary therapeutic agent, and believe that improvement is due to a tissue reaction which builds up immunity in the nervous system. Excessive high fever is neither necessary nor desirable, and every effort should be made to keep the temperature consistently below 106° F. A course of eight paroxysms is considered sufficient; longer periods of treatment debilitate the patient and damage his recuperative powers. The authors have found that 35 per cent. of such cases show evidence of aortic or cardiac disease, and believe that the incidence of this complication is even higher. Circulatory collapse may occur during malaria therapy; it is apparently brought about by severe fatigue due to disturbance of the vasomotor tone. Treatment is similar to that for shock, and the malaria therapy must be promptly terminated; digitalis is ineffectual in such cases. The authors believe that a systolic blood pressure below 90 mm. of mercury is not a dangerous sign during treatment; in many of their patients it remained consistently around 70 without any adverse sequels. They urge that the criterion for malaria therapy should be the physical condition of the patient rather than his mental state. Careful attention to the medical aspects will lower the mortality rate, and carry even the less hopeful cases through treatment satisfactorily. Antisyphilitic chemotherapy is valuable before malaria is induced, especially in debilitated cases, and it is highly advisable after the malaria has been terminated.

497 Precautions during Arsphenamine Administration

In 1919 Davis and Whipple reported that diets rich in carbohydrates afford protection against liver injury caused by chloroform, whereas diets rich in fat and protein predispose to hepatic disturbance; it was subsequently assumed that the same conclusions might be applicable to the toxic effects of arsphenamine. E. B. CRAVEN, jun., (*Bull. Johns Hopkins Hosp.*, March, 1931, p. 131) doubted whether such a conclusion was justifiable in the case of two drugs chemically so dissimilar, even though the type of liver injury, central necrosis, was the same in both. Experiments were therefore devised to test the three principal diets—namely, high in carbohydrate, high in fat, and high in protein—against the liver injury produced by arsephenamine. Craven found that diets rich in fat and protein gave the maximum protection against such liver injury, the fat being definitely more efficacious in this respect. Diets containing large quantities of carbohydrates seemed to confer on the liver the maximum susceptibility to hepatic intoxication during the administration of arsphenamine; another predisposing factor of the same kind was starvation. This action of carbohydrate dietaries was not modified by the addition of cystin to them, or its intravenous injection. Craven, therefore, disagrees with the established practice in certain clinics of placing patients suffering from arsphenamine jaundice on a high carbohydrate diet.

498 Barium Chloride in Typhoid Fever

E. PETRINA (*Il Policlinico*, Sez. Prat., March 30th, 1931, p. 437) publishes brief notes of six cases of typhoid fever treated with barium chloride, and refers to 23 other cases in which this salt was tried. In spite of the reputation of extreme toxicity attached to this drug, the author encountered no bad results from its administration, except

in one instance where it caused vomiting. He gave 1.5 grams each day, in three divided doses, for five days; allowed a five-day interval, and then repeated the administration for a second period of five days. The benefit appeared in the form of clearing up the stuporose condition, cleansing the mouth, lessening the meteorism and enlargement of the spleen, and hastening the disappearance of the rash. The presence of considerable albuminuria proved no drawback in this treatment, and all the patients recovered.

499 The Glucosides of Squill in Acute Scarlatinal Nephritis

A. STROE and P. KLINGER (*Paris Méd.*, April 11th, 1931, p. 357) report a series of 21 cases of scarlatinal nephritis, of which 9 were of the hydraemic, 5 of the azotaemic, and 7 of the mixed types, which were treated by squill glucosides. Scillarene was used in the form of tablets containing 0.0008 gram, or as a solution of 0.008 gram. in 1 c.cm., two to three tablets or 20 to 30 drops being given daily. The daily administration was continued until improvement was shown by reduction of the oedema, fall in the blood urea, or increase in the output of urinary urea. The minimum time for the appearance of any improvement was forty-eight hours, and treatment has been continued for as long as thirty days without the development of toxic signs due to accumulation of the drug. Some patients were admitted with marked oedema; in these it was difficult to assign the amount of improvement due to the specific diuretic, and to the usual dietetic and hygienic measures, but in the case of those admitted early to hospital the authors have no doubt that the drug materially hastened recovery. Only one instance of intolerance to the drug was noted, vomiting supervening and preventing further trial; in one case there was no improvement, and in a third the drug failed, as did every other possible therapeutic measure. In no case did the appearance or increase of epithelial casts or red blood cells in the urine give evidence of renal damage by the drug. The authors consider that the failure of this powerful diuretic to damage the essential renal tissues supports the hypothesis of Chabanier and Blum assigning an important role to the extra-renal tissues in the mechanism of chloride retention.

Laryngology and Otology

500 Pathogenesis of Aural Cholesteatoma

D. MCKENZIE (*Journ. of Laryngol. and Otol.*, March, 1931, p. 163) reviews the etiology of causation of cholesteatoma, but declines to endorse the theory of epidermal invasion, or that of metaplasia. Primary cholesteatoma, a rare but definite condition, is described in detail, and a full account is given of the microscopical structure and the behaviour of primary and secondary cholesteatoma. Three theories are advanced to explain the expansion of the cholesteatomatous cavity: (1) simple pressure atrophy; (2) some chemical action; and (3) invasion of the Haversian systems, a theory first advanced by Kirchner. McKenzie, however, favours the pressure atrophy theory. Attention is drawn to cholesteatomata, which occur rarely in the basal cisternae, and which are now believed to be inclusion tumours; they closely resemble aural cholesteatomata in their microscopical appearance. The conclusion drawn is that all cholesteatomata are primary, and that the so-called secondary cholesteatoma is one which has broken through its limiting membrane and become secondarily infected. The theory that cholesteatoma is an inclusion tumour brings aural and cerebro-spinal cholesteatomata into line, and the site of origin in the aditus-antrum region, where many elements meet, favours this theory. McKenzie, however, is not convinced of its validity. This account has one important bearing on treatment—namely, the removal of the thin plate of bone in the aditus-antrum region, if the disease is limited to that small area. If symptoms of wider infection are absent the mastoid operation is avoided, and many hearing ears may be saved.

501 Treatment of Peritonsillar Abscess

G. CANUYT (*Ann. d'Oto-Laryngol.*, January, 1931, p. 61) describes investigations which he has made in order to discover the exact site of pus collection in the so-called antero-superior peritonsillar abscess. The tonsillar region in a fatal case was dissected carefully, and fluid was injected into the peritonsillar region in dissecting-room subjects. These experiments led the author to the belief that the abscess is situated between the tonsillar capsule and the pharyngeal wall. *X*-ray examination of the living after the injection of lipiodol, and the conditions met with in a series of tonsillectomies during the acute stage of peritonsillar abscess, pointed to the same conclusions. In describing his technique of treatment the author recommends exploratory puncture with a wide-bore needle, and aspiration in every case. This, and the further incision of the abscess, is conducted under infiltration anaesthesia, which has always proved effective. If pus is found on exploration, the abscess is then opened by a long incision through the anterior pillar of the fauces, and by the opening up with blunt instruments of the tonsillar fossa between the capsule and the pharyngeal wall. This approach provides free drainage from the most dependent part of the abscess, and is in accordance with general surgical principles. Canuyt recommends that the first incision should be made with an electro-surgical instrument if this is available. In conclusion, it is emphasized that the best prophylaxis of peritonsillar abscess is complete tonsillectomy.

502 Acute Inflammation of the Auditory Meatus

B. FOSTER (*Med. Journ. of Australia*, January 3rd, 1931, p. 15) reports a case which might easily have been mistaken for a furuncular abscess in the external auditory meatus had not the patient insisted that there was a foreign body in the left ear. Twenty days previously he felt something enter the ear; he could not remove it, and since the ear became increasingly sore he sought medical advice. Syringing gave but temporary relief, and the pain returned with such severity that the patient was deprived of sleep. When seen by Foster the meatus was occluded by inflammatory swelling, and there was well-marked facial paralysis of the left side. The meatus contained a large quantity of creamy material of faint pink tinge. When this was cleared away there appeared to be a bead of granulation tissue on the floor of the cartilaginous meatus. A minute foreign body, smooth and hard, and quite embedded in the floor of the meatus, was removed by aural forceps, proving to be a squashed tick about 4.5 mm. in length, which had burrowed for about half its length into the floor of the meatus. The creamy material was mainly excretion from the tick. There was no other injury apart from the small excavation in the floor of the meatus. The middle ear was intact, and hearing was unimpaired. The condition rapidly cleared up, and within three days all signs of facial paralysis had disappeared.

Obstetrics and Gynaecology

503 Monilial Vulvo-vaginitis

E. D. PLASS, H. C. HESSELTINE, and I. H. BORTS (*Amer. Journ. of Obstet. and Gynecol.*, March, 1931, p. 320) believe that vaginal fungus infections are more common than is generally believed. Opinions differ regarding the pathogenicity of monilia. Normal females may have a chronic symptomless infection. Some writers regard its presence as symbiotic. Trichomonas and monilia may exist together or separately, with or without symptoms. Animal experiments have not been conspicuously successful. Inoculation of a healthy pregnant woman from a case of mycotic vaginitis caused transient local irritation that subsided spontaneously. Vaginal inoculation with brewers' yeast is said to have relieved persistent leucorrhoea. In severe cases a granular vaginitis resembling that seen in severe gonorrhoea is observed. Inguinal lymphadenitis is rare. When found, typical white flakes

are pathognomonic. Infection may occur at any age, but is most frequently in sexually active adults; menstruation probably, and diabetes and pregnancy certainly, are predisposing factors. Monilia infection during pregnancy may produce oral thrush in the newborn child. The present authors have examined the secretions in five diabetic patients, and in every case monilia was present, although only one patient complained of irritation. Diagnosis may be made from hanging-drop preparations, by finding mycelial threads and budding elements. When mycelia are absent, a positive diagnosis can be made only by stained smears and cultures. Both mycelial and conidial forms stain well, and are definitely Gram-positive. Sabouraud's medium (dextrose-peptone-agar adjusted to a *p*H of 5.5) is the best for the detection of fungi in doubtful cases, or for confirmation, since the excess of acid inhibits growth of most symbiotic organisms, although some staphylococci and bacilli grow freely. Monilial vaginitis tends to undergo spontaneous cure, but occasionally becomes chronic. In pregnancy, delivery is followed usually by complete relief, and menstruation relieves temporarily. Local application of aqueous solution of gentian violet (1 per cent.) is most efficacious; alkaline douches may assist.

504 Pessaries and Vaginal Cancer

G. v. WOLFF (*Zentralbl. f. Gynäk.*, March 14th, 1931, No. 11a, p. 942), who records three illustrative cases, states that while it is well known that chronic irritation of a chemical, thermal, mechanical, or physical nature may frequently lead to cancer, as is shown in the case of chimneysweeps, aniline workers, pipe smokers, and tar cancer in mice, comparatively few cases have been recorded of vaginal cancer due to a long-retained pessary. The author has found only 19 examples in German literature extending over a large number of years. His own cases, however, all occurred within a relatively short period. The first patient was a woman, aged 58, who had had ten children and seven abortions, and had worn a ring pessary which had not been changed for six years. Septicopyaemia developed shortly after the institution of radium treatment, and at the post-mortem examination, in addition to vaginal cancer, septic thrombophlebitis and metastases in both lungs were found. The second patient was a woman, aged 71, a 3-para, who had worn a ring continuously for eleven years; she was still under treatment by radium. The third patient was a nullipara, aged 69, who had worn a ring uninterruptedly for thirty years, and was still under radium treatment. Histological examination of the first case showed the presence of cancroid, and in the other two of squamous-celled epithelioma.

505 The Barbiturates in Obstetrical Analgesia

M. L. AXELROD (*Anesthesia and Analgesia*, March–April, 1931, p. 64) has found, as the result of experiments, that the only barbiturates, soluble in oil and ether, that can be safely and efficiently used in obstetrics with supplemental (nitrous oxide-oxygen) anaesthesia are iso-propyl-allyl, *n*-butyl-ethyl, and methyl-*l*-ethyl-butyl. The action of these was practically identical in the same dosage. They eliminate the use of drugs which may seriously affect the infant, and have no effect on the latter; they also reduce the post-operative need of narcotics. Labour pains, and the pulse, respiration, blood pressure, and blood loss are not affected. No late after-effects have been noted, though restlessness may develop, and so the patient must be watched. Axelrod found that 1 gram of barbiturate in 2½ oz. ether and 1½ oz. oil with 20 grains quinine gave the best results. Though in most cases the dosage was regulated according to the body weight, the maximum dose of the barbiturate never exceeded 1 gram. Premedication varies with the obstetrician. This rectal instillation is given in the first stage of labour, and is preceded by 1 oz. plain oil and the application of vaseline round the anus to prevent irritation should ether be expelled. The instillation should be given uniformly and slowly to permit of the mixture entering the colon between contractions. Light anaesthesia of twelve to fifteen hours is obtained. This method has been used in about 100 cases (6 are here reported) with only 2 failures.

Pathology

506 The Kahn and Wassermann Tests

C. H. K. SMITH and N. A. MICHAEL (*Journ. Royal Army Med. Corps*, March, 1931, p. 202) have compared the Wassermann and Kahn tests in 2,300 cases. The Wassermann technique was that described as No. 1 Method in the Medical Research Committee's Special Report Series (1918), while for the flocculation procedure Kahn's routine test was the one adopted. It was found that a "home-made" antigen for the Kahn test gave satisfactory readings, was very economical, though slightly less sensitive than the Parke Davis standardized antigen. The results of the 2,300 serums showed 96 per cent. agreements; an analysis is given of the discordant results. Disagreement was most marked in cases of primary syphilis before treatment (28), when the Wassermann reaction was negative and the Kahn negative-incomplete (a fine granulation in two tubes). In ten of these *T. pallidum* was found, and both reactions became positive later. In the remaining cases both reactions became positive later, the Kahn reaction tending to do so rather earlier than the Wassermann. In 23 cases of syphilis during or after treatment the Wassermann reaction was weakly positive and the Kahn was positive, appearing to persist longer during treatment than the Wassermann. Disagreements were also noted with septic serums, the impression being that a positive Wassermann reaction was more likely to be caused by sepsis than a positive Kahn. In favour of the Kahn test, in the author's opinion, is its great simplicity; the fact that it does not require any elaborate apparatus, or animals, permits its being performed in small laboratories.

507 The Blood Platelets in Pulmonary Tuberculosis

G. BAQUERO (*Arch. de med., cir. y esp.*, March 19th, 1931, p. 231) made a study of the blood platelets in 23 cases of pulmonary tuberculosis in various stages of the disease, with the following results. In cases of fibroid tuberculosis in which the process has shown a more or less prolonged state of stabilization with hardly any clinical symptoms, the number of the blood platelets remains the same or shows a tendency to be slightly subnormal. The same character of stabilization in the platelet values is seen in cases of fibro-caseous tuberculosis, without, however, any tendency to subnormal figures, but rather with a slight increase. This stabilization is interrupted by appreciable changes in cases of fibro-caseous tuberculosis in which complications develop. These changes give rise to an increase which may be considerable, and they are proportionate to the destructive character of the lesions. If the complications produce a high temperature the number of the platelets fails to reach the normal when the fever has subsided. In advanced fibro-caseous tuberculosis the platelets are considerably increased. When there is a marked exudative tendency the platelets are generally greatly increased, and they present certain variations. The platelets do not show any appreciable change connected with haemoptysis in pulmonary tuberculosis.

508 The Bacteriophage in the Diagnosis of Dysentery

Sonnenschein was the first to make use of the bacteriophages in bacteriological diagnosis, and he has described specific phages for typhoid and for the various types of dysentery bacilli. M. TOYODA (*Deut. med. Woch.*, March 13th, 1931, p. 451) now describes a bacteriophage isolated from hen's excreta which is specific for the dysentery group of bacilli but is polyvalent—that is, it reacts with all the members of the dysentery group though not with similar organisms, such as *B. coli*, *B. typhosus*, and the paratyphoid and food-poisoning bacteria. Toyoda has used this agent for the rapid diagnosis of the presence of dysentery bacilli in cultures from patients' faeces; all suspicious colonies, after being inoculated for twelve to twenty-four hours, are mixed with the bacteriophage and tested for lysis.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

509 The Blood in Delirium Tremens

E. TOULOUSE, A. COURTOIS, and RUSSELL (*Ann. Méd.-psych.*, February, 1931, p. 124) examined the blood in the course of delirium tremens with the following results. The amount of urea, sugar, and cholesterin is usually normal, or only slightly increased, at the onset of the mental symptoms. During the course of the attack there is a retention of these bodies chiefly affecting the urea. After the attack the azotaemia does not return to the normal for several days. The bile pigments were always found distinctly increased on admission of the patients, but rapidly became eliminated, and their amount soon fell after the attack. This fact, correlated with the changes found in the urine (albuminuria, glycosuria, and abundant urobilinuria), appeared to indicate an initial insufficiency of the liver. In fatal cases the azotaemia rose while the attack lasted, but usually at the time of death the amount of urea did not reach 2 grams per mille. As this figure may be exceeded in non-fatal cases, the prognostic value of this azotaemia is very slight.

510 Pulmonary Embolisms in Developing Myocardial Infarct

P. LÉCHELLE and R. BOUCOMONT (*Presse Méd.*, March 18th, 1931, p. 399) record the case of a man, aged 52, who was seen first in August, 1929, suffering from severe precordial pain, the sputum being typical of acute pulmonary oedema. These cardiac attacks had occurred for several years, and an *x*-ray examination two years earlier had revealed hypertrophy of the left ventricle and dilatation of the aorta. The apex beat was in the sixth space, outside the nipple line; there was a mitral systolic murmur, gallop rhythm, pericardial friction at the base, and a pulse rate of 120. There were moist rales at both pulmonary bases. The liver was slightly enlarged and tender, and the temperature 100.8° F. After 500 c.cm. of blood had been withdrawn, an intravenous injection of 0.25 mg. of ouabain was given, and repeated the same evening; 2 ampoules of pantopon were injected. The patient improved, and on the fifth day pain and pericardial friction had disappeared. Ouabain was continued, but gardenal was substituted for the opium. On the seventh day there was a severe attack of pain at the right base, with orthopnoea, and the appearance of a murmur accompanied dry crepitant rales in this region. The temperature rose to 101°, and on the ninth day there was blood-stained sputum. A pleural effusion ensued. All signs at the right pulmonary base disappeared in a few days, but on the fourteenth day there was a similar attack localized under the left armpit. Blood-stained sputum reappeared for a few days. During all this period there were increasing signs of cardiac insufficiency and dilatation of the right heart. Ouabain was continued for twenty-six days without any sign of intolerance. On the twentieth day digitaline was exhibited. Signs of the two pulmonary infarcts disappeared in five weeks. The blood pressure ranged between 165/90 and 135/80. Ouabain by the mouth and gardenal were continued. The patient returned to his ordinary occupation, but died from an acute attack in February, 1930.

511 Angina Pectoris

F. C. WOOD, C. C. WOLFERTH, and MARY M. LIVEZEY (*Arch. Int. Med.*, March, 1931, p. 339) studied the clinical and electrocardiographic phenomena in thirty cases of angina pectoris before, during, and after the attacks; they also compared them with the effects of experimental temporary coronary occlusion. Transient ventricular complex changes were noted in fifteen during the pain; neither exercise nor the accompanying alterations in blood pressure and pulse rate were altogether responsible for these changes. The remaining fifteen patients showed no such electrocardiographic changes, and the severity of the pain did not appear to be the main determining factor of their presence or absence. That the absence of electrocardiographic changes seen in 50 per cent. of the cases does not prove that temporary myocardial ischaemia did not occur was borne out by the result of experimental occlusion of a coronary artery; the production of alterations in the cardiac appearance and action was frequently unaccompanied by any electrocardiographic change. The relief of pain by nitrites did not always appear to be dependent upon the lowered blood pressure caused thereby, since the fall in blood pressure within fifteen seconds after inhaling amyl nitrite usually rebounds to from 10 to 20 mm. above its original level after inhalation stops. The prognostic value of these electrocardiographic changes during attacks cannot yet be determined; although no untoward occurrences arose, the procedure cannot be recommended owing to the danger attending the induction of anginal attacks. Temporary interference with part of the coronary circulation in animals produced changes in the electrocardiogram somewhat analogous to those seen during an attack of angina. The authors add that these studies support the hypothesis that the majority of true anginal attacks are associated with a localized circulatory disturbance in the heart, though they do not preclude the possibility that other mechanisms may produce precordial pain.

512 Syphilis without Chancre

M. MANSOUR (*Thèse de Paris*, 1931, No. 21), who records sixteen illustrative cases, states that syphilis may occur without an initial chancre; it is then manifested either by a glandular reaction or by the appearance of secondary or secundo-tertiary symptoms. With the exception of the congenital disease, this form of syphilis appears to be rare, and a careful examination should be made for the chancre or a scar in every suspected case of syphilis. In view of the undoubted possibility of transmission of syphilis from the donor to the recipient, special care should be taken to make sure of the donor's good health in transfusions of blood, and, except in extremely urgent cases, a complete clinical and serological examination of the donor should be undertaken. In the case of professional donors it is not sufficient for this examination to be made only once, but it should be repeated at frequent intervals, at least every month, and as near as possible to the date of transfusion.

513 Vaccinial Encephalitis

H. R. VIETS and S. WARREN (*New England Journ. Med.*, March 5th, 1931, p. 475) report three cases of this form of encephalitis; two patients died on the fourteenth day after vaccination. The earliest symptoms are headache, vomiting, and pyrexia, with a tendency to paralysis. In infants, in addition to these symptoms, convulsions are frequent. Consciousness is soon lost. The paralysis consists of weakness of the cranial nerves or of the extremities, and there is a considerable variation in the intensity from time to time. The Babinski response is sometimes obtained; as the disease progresses the deep reflexes disappear. Sphincter control is usually disordered, incontinence being a common finding. Trismus has occurred in many cases—a symptom which has led to errors in diagnosis. The spinal fluid pressure is often increased, and there may be present a few mononuclear and polynuclear cells; otherwise it is negative. Residual defect, as in poliomyelitis, is not usual, though in the case that recovered in this series "foot-drop" was present four months after the illness. Later manifestations, so frequent in encephalitis lethargica, have not been recorded. The mortality ranges from 35 to 50 per cent. The microscopical pathology is distinctive; the outstanding lesion is perivascular cellular infiltration, extending out into

the brain substance, and usually accompanied by demyelinization. The lesions tend to involve the white matter rather than the grey, but the more acute the case, the more even is the distribution. The lesions may be most intense in the region of the pons and the upper portion of the medulla.

514 Cutaneous Pigmentation and Health

As the result of an extensive study of the effects of heliotherapy, particularly in children, FR.-M. MESSERLI (*Rev. Méd. de la Suisse Romande*, March 10th, 1931, p. 137) states that cutaneous pigmentation is constant in helio- or actino-therapy, and as a rule individuals who pigment readily are in better health than those who do so with difficulty. This pigmentation, which is a special defensive property of the skin against injurious external agents, and is due to melanin in the deep layer of the Malpighian stratum, depends on the individual pigmentary reserve, the amount of haemoglobin, and the presence or absence of cachectic disease. Though seemingly not an important agent in causing cure, it gives useful indications as to the patient's general resistance and progress. Depigmentation depends on the same factors and, providing still clearer indications as to the results and permanency of the cure, is a guide to diagnosis, prognosis, and future treatment. In each individual there is a limit of pigmentation, ascertainable by a pigmentometer; when this has been reached further treatment by heliotherapy is useless. The power of pigmentation varies from year to year, but generally increases each year until the limit is reached. It has been noted that in certain diseases, such as tuberculosis, patients become pigmented much less markedly and lose their colour more rapidly. Messerli advises that, as a guide to diagnosis and treatment, a pigmentary curve of each subject under treatment be made by ascertaining weekly the rapidity and degree of pigmentation and depigmentation, and that the temperature be taken frequently, preferably every two hours.

515 Mental Symptoms of Hypoglycaemia

REINWEIN (*Deut. med. Woch.*, April 3rd, 1931, p. 571) draws attention to the fact that mental symptoms, such as disorientation, uncontrolled laughter, and peculiar behaviour, may be due to hypoglycaemia; they are not necessarily preceded by the usual complaint of hunger, sweating, or weakness. In other cases epileptiform attacks, or symptoms resembling apoplexy, occur. Several illustrative cases are recorded of diabetic patients receiving relatively large doses of insulin and, owing to some upsetting factor such as diarrhoea, vomiting, or excessive muscular work, suddenly developing hypoglycaemia with mental symptoms. The diagnosis is usually easy so long as the existence of diabetes is borne in mind. In some cases large amounts of sugar must be given, so that failure to relieve the symptoms immediately by injecting glucose does not disprove the diagnosis.

516 Meningococcal Meningitis

V. CANTALAMESSA (*La Pediatria*, March 1st, 1931, p. 233), as the result of a study of 42 cases of meningococcal meningitis occurring in infants, concludes that although its insidious onset makes early diagnosis difficult, suggestive symptoms are the quick pulse and respiration without fever; the hyperaesthesia, restlessness, and vomiting; the tense fontanelle and neck rigidity (in rare cases flaccidity occurs rather than rigidity); and the convulsions, wasting, and leucocytosis. There is usually intermittent irregular fever; in four cases the course of the disease was apyrexial. In every case meningococci were found in the spinal fluid. In some cases blockage occurred in the cerebro-spinal channels, causing secondary hydrocephalus in three cases. The mortality was high (75 per cent.) in spite of serum injections into the spinal canal and ventricles. The duration of the disease varied from a minimum of three or four days up to fourteen or fifteen weeks. In 20 of the author's cases there was a sudden onset; of these only 3 recovered, while of the 22 with slow onset 7 recovered. Moderate enlargement of the spleen was noted in several instances.

Surgery

517 Acute Dilatation of the Stomach

J. MORROW (*Minnesota Med.*, March, 1931, p. 218) describes ten cases of post-operative dilatation of the stomach ; in none of them was the stomach operated on, and two were fatal. The probable etiology, he states, is, firstly, gastric relaxation due to reflex loss of tone, and secondly, some added and perhaps chance mechanical obstruction. An early symptom is constant distress in the left upper quadrant of the abdomen, unrelieved by enema. A tympanitic note may be heard over a large area, and immediate relief follows the passage of the stomach tube. A later stage is characterized by the accumulation of very large quantities of water in the stomach, toxic symptoms, signs of dehydration, and collapse. Gastric lavage every four hours is advised, aided by elevation of the pelvis, or even the adoption of the knee-elbow position, if practicable, and by small doses of pituitrin. For cases with toxaemia intravenous injections of 500 c.cm. of normal saline are advocated. The duodenal tube and continuous gastric siphonage were both tried with comparatively poor results.

518 Spondylitis Deformans

According to S. KLEINBERG (*Arch. of Surg.*, March, 1931, p. 485) the progressive deformity of spondylitis deformans may be checked by an early diagnosis and by the immediate institution of proper treatment. This chronic disease of the back is characterized by increasing stiffness and deformity of the spine; backache; pains in the head, chest, or extremities; and impairment of the general health. Three etiological types may be distinguished: one which is part of a general metabolic disturbance, the traumatic, and one associated with some infection. The chief pathological change, common to all varieties, is a chronic, progressive, ossifying periostitis of the spine which leads to ankylosis of the vertebral and costo-vertebral joints. This process may be limited, but it usually involves the entire spine. Treatment, both general and local, to be effective must be instituted before the spinal ankylosis is complete. Local measures consist in continuous treatment on a convex frame, supplemented by physiotherapy, stretching of the back, and voluntary corrective exercises. After correction of the deformity, the back must be supported in a spinal brace for a long period. Four cases, representative of the different types, are recorded.

519 Obliteration of the Common Bile Duct

R. L. T. GRANT and L. O. BETTS (*Med. Journ. of Australia*, February 14th, 1931, p. 200) report the case of a boy, aged 8 years, with a history of jaundice of three months' duration. The skin, sclerae, urine, and faeces presented the usual appearances. The liver dullness extended just below the costal margin. The Wassermann test was negative. The urine contained bile but no urobilinogen. Van den Bergh's test was positive; the bilirubin was increased to 4 units. The Mantoux and Casoni tests were negative. On cholecystography no shadow of the gall-bladder was seen. The levulose tolerance test showed slight but definite impairment of liver function. No bile was demonstrated in the contents of the duodenum, aspirated through a tube passed by the mouth. All tests showed complete obstructive jaundice. The boy's condition had deteriorated materially during the month of these investigations, and an exploratory operation was performed; all that could be found representing the common bile duct was a definite fibrous band in which no lumen could be discovered. The gall-bladder was not distended; it was opened and about 8 c.cm. of concentrated bile were evacuated. As the cystic duct was apparently functioning a cholecyst-duodenostomy was performed. On the duodenum being opened, a little bile-stained fluid was seen, but the boy's condition precluded further investigation. Convalescence was satisfactory, the jaundice disappearing completely in five weeks.

520 Exophthalmic Goitre

B. DESPLAS (*Bull. et Mém. Soc. Nat. de Chir.*, March 14th, 1931, p. 360) reports eleven goitre patients, of whom eight were suffering from Basedow's disease and three from grave toxic goitre. There was only one death in the series; this occurred thirty-six hours after operation in a patient who had a very rapid and irregular pulse with diarrhoea and cold sweats. It was the only case in which the general anaesthetic used was ether; although the patient was in a very poor condition, the author regrets that local anaesthesia was not employed, since it proved so successful in the other cases. A two-stage operation was found to be the most satisfactory, the first stage consisting of ligature of the superior thyroid vessels combined with a sympathectomy, the second stage being hemithyroidectomy or enucleation of the adenomata when present. In certain cases where the patient is in a grave condition, ligature of the thyroid vessels only is carried out, and this has given relief. Careful pre-operative measures, such as complete rest, a milk diet, and digitalis and iodine treatment, are of great benefit. In cases which show an intolerance for iodine this must be omitted. One case treated by radiotherapy developed *x*-ray dermatitis with ulceration without deriving any benefit, although a subsequent hemithyroidectomy was most successful. The after-results in the ten patients who recovered were very satisfactory, and after an interval ranging from two to eleven years all but one were in good health. The essential syndrome had disappeared, and there was no more tachycardia or pulse irregularity ; the patients had gained in weight, and were able to lead normal lives.

521 Results of Extrapleural Thoracoplasty

As indications for thoracoplasty in pulmonary tuberculosis, O. SCHEDTLER (*Deut. med. Woch.*, March 20th, 1931, p. 491) enumerates: (1) all unilateral cavernous cases; (2) bilateral cavernous cases if the state of the opposite lung is not too advanced, and is not progressing (at least two months' observation); (3) incomplete pneumothorax with cavernous or adherent upper lobes; (4) the same with serous or purulent exudate; (5) residual cavities after pyo-pneumothorax, if conservative treatment fails; (6) dangerous haemoptysis, if pneumothorax is impossible or unsuccessful; and (7) severe fibrosis with symptoms due to cardiac displacement. The operation of total thoracoplasty is performed as rapidly as possible under local anaesthesia in one stage, or more commonly two. In 320 consecutive cases operated on in Ziegler's clinic prior to October, 1929, the total mortality within eight weeks of operation was 5.3 per cent., but in uncomplicated unilateral cases 3.3 per cent. Of the first 200 thoracoplasties performed 64.5 per cent. of the patients are alive and 2 per cent. untraced; 43.5 per cent. of the 200 are considered healed—that is, they are capable of light or moderate work without symptoms, and are sputum-negative. Another 19.5 per cent. improved. In the author's opinion thoracoplasty is an effective method of combating severe cases of pulmonary tuberculosis which at present is not sufficiently recognized and used. If the correct indications are observed, and careful pre- and post-operative treatment is combined with exact technique, the procedure is comparatively safe.

522 Osteoma of the Humerus

G. FORNI (*Chir. d. Org. di Movimento*, February, 1931, p. 497) reports the case of a boy, aged 10, who sustained a slight injury to his left arm in September, 1927. In the following November some swelling of the arm was noted; periostitis was diagnosed, and treatment appropriate to that condition was applied, but no improvement followed. In March, 1929, the arm was *x*-rayed, and a diagnosis of osteosarcoma was made. The parents refused amputation. Since the growth was very slow, and there were no signs of secondary deposit, a part of the tibia with its periosteum was excised and transplanted into the gap made by complete resection of the growth in the humerus. Convalescence was satisfactory, and after nearly two years the boy remains well, has a useful arm, and shows no signs of recurrence.

Therapeutics

523 Serum Treatment of Erysipelas

F. EISELBERG (*Wien. klin. Woch.*, February 27th, 1931, p. 290) records his observations on 43 cases of erysipelas treated by subcutaneous injections of polyvalent anti-streptococcal serum. The cases in which the serum was used were characterized by a progressive character, high temperature, and toxic symptoms. The initial doses were 20–40 c.cm., and the other injections were repeated until a total of 80–100 c.cm. in all had been given. The results were as follows: in half the cases there was no obvious effect on the temperature curve, while in the other half the fall of temperature was only transient. In most of the cases, however, there was a rapid relief of subjective symptoms, even when the serum was given after the fourth day. Six of the 43 cases ended fatally, death being due in one instance to sinus thrombosis and meningitis, and in the other five to severe septicaemia which was in no way affected by the serum.

524 Treatment of Chronic Arthritis

PODOLSKY (*Med. Journ. and Record*, March 18th, 1931, p. 270) states that benefit is obtained in chronic arthritis by associating the magnesium salt of phenylcinchoninic acid with such compounds as magnesium oxide. The ethyl ester of para-methyl-phenylcinchoninic acid was also used effectively in this way. Podolsky reports a series of thirty arthritic patients dealt with on these lines, and details are given of the clinical results, improvement ensuing in some cases which had proved absolutely resistant to other forms of treatment. The doses of the synergistic magnesium compounds employed were minimal. No gastro-intestinal disturbance or nausea was observed, and there were no manifestations of any other form of toxicity. Pain not easily controlled by other forms of medication seemed to yield more readily, and active motion of the joints was attempted earlier. In the first fifteen cases the magnesium salt of phenylcinchoninic acid, thus reinforced, was used; in the second fifteen the ethyl ester of para-methyl-phenylcinchoninic acid was employed with magnesium. In both series this treatment was continued for nine days in daily doses, and was followed by a saline cathartic. Subsequently the patient received aceto-salicylic acid for about a week, when the magnesium combination was repeated, if necessary. No signs of any scleral icterus were detected. Emphasis is laid on the value of this treatment in inducing the patient to submit to joint movement at a much earlier date than in the case of other therapeutic procedures.

525 Treatment of Meningococcal Meningitis

T. GOLDMAN and A. G. BOWER (*Amer. Journ. Med. Sci.*, March, 1931, p. 414) record their observations on 50 cases of meningococcal meningitis in which specific serum was given by the cisternal route, as compared with 48 cases in which it was injected by lumbar puncture. Each of the 50 cases treated by cistern puncture received an average of 6.4 punctures, or two less than by the lumbar method. An average of 135 c.cm. of antimeningococcal serum was injected in the cisterna, and 128 c.cm. was given either intravenously or intraperitoneally, a total of 263 c.cm., or 30 c.cm. less than was used in treatment with the lumbar method. Of the 50 cistern cases 18 were fatal (36 per cent.), a difference in mortality of 22 per cent. in favour of the cisternal route; the difference was still greater after exclusion of 7 patients who died within twenty-four hours of admission.

526 Treatment of Syphilis

M. B. PAROUNAGIAN (*New York State Journ. Med.*, March 1st, 1931, p. 261) reviews the newer methods of treating syphilis, and concludes that arsphenamine is the drug of choice in early disease (chancre and secondaries) affecting young robust patients ; he prefers neoarsphenamine for elderly persons, pregnant women, children, and patients with renal, cardiac, and other complications. Silver arsphenamine is useful in neurosyphilis,

extensive gummatous ulcerations, and anaemia, as well as for patients who cannot tolerate other arsenicals. Mercury is always to be included in the therapeutic attack on syphilis, but the reaction of the patient must be considered when deciding on the dosage, the duration of treatment, and the type of preparation likely to be most effective. Bismuth may be substituted for mercury when the latter is not well tolerated, and also when the patient has become sensitized to both arsphenamine and mercury. The author has at times observed some gratifying clinical improvement when colloidal bismuth is tried in cases of congenital syphilis and of tabes. Iodides are employed in all types of infiltrating lesions, such as persistent chancre, deep-seated secondaries, and gummatous deposits. Parounagian remarks that the latter-day acceptance of the possibility of syphilitic reinfection indicates that the newer methods are more successful than the earlier ones.

527 Calcium Gluconate in Oedema

W. S. O'DONNELL and S. J. LEVIN (*Journ. Amer. Med. Assoc.*, March 14th, 1931, p. 837) commend the administration of calcium gluconate for the relief of oedema in children who are suffering from nephrosis. This salt, which contains 9.3 per cent. of calcium, is supplied in ampoules containing 15½ grains in about 10 c.cm. of water. No nausea or vomiting followed, and there were no undesirable sequels of any kind. Although the injections made into the oedematous tissues caused no harmful effects, it is suggested that it is better to give small doses of 10 c.cm. at different points, spaced apart, and subcutaneously. Ascites disappeared, and there was a decrease in the size of the abdomen. A general improvement in the appetite and health of the children was observable after the disappearance of the oedema; the dehydration of the bronchial mucous membranes seemed to have a good effect on the resistance to the dangerous respiratory complications, and the kidneys were also dehydrated concurrently without adverse signs developing. Details are given of three cases so treated; it was calculated that about 7½ grains were required for each pound of fluid removed. The dose necessary in each case could be estimated in advance, and the requisite amount of calcium gluconate be given rapidly in two doses so as to abolish the oedema without delay. It is necessary to keep such patients on a measured sufficiency of protein in the diet, in order to restore the lost blood protein and to keep the kidneys from secreting too much albumin.

528 Bromide and Iodide Therapy

According to V. E. HENDERSON and G. H. W. LUCAS (*Canadian Med. Assoc. Journ.*, March, 1931, p. 412) there is no pharmacological reason for using any other bromide or iodide than the sodium salt. The preference attached by some physicians to the potassium, ammonium, and strontium salts seems to be based on the fact that very marked changes in the isolated heart and the intestines can be produced by increasing the percentage of potassium or calcium, but it is now recognized more and more that the active agencies are the bromide and iodide ions; the intensity of the effect of a bromide salt, for example, depends on the degree of substitution of bromide ion for the chloride, so that the patient who is not taking ordinary salt in his diet shows the effect of bromide therapy more rapidly. The only indication for the ammonium salt would be the need of giving a bromide base and at the same time changing the acid-base balance to the acid side. To make these salts palatable they should be well diluted, so that the solution, as taken, should not contain more than 15 grains to the ounce. The addition of syrup definitely improves the flavour. When the bromides are to be combined with hyoscyamus, both the flavour and the colour are very largely dependent on the quality used, a good tincture yielding a greenish solution, and a poorer one a brownish solution; clarity cannot be obtained without adding alcohol; otherwise, oily globules will separate after standing. Syrup of ginger is a useful addition, and so also is the extract of liquorice for those patients who do not dislike its flavour.

Disease in Childhood

529 The Diagnosis of Pulmonary Tuberculosis in Childhood

V. POULSEN (*Ugeskrift for Laeger*, February 5th, 1931, p. 125) discusses the not altogether rare cases in which a tuberculin reaction is positive in childhood but the stethoscopic and *x*-ray signs are inconclusive or negative, and it is impossible to diagnose pulmonary tuberculosis unless tubercle bacilli can be found in the sputum. As the sputum is usually swallowed in childhood, tubercle bacilli can be found only by washing out the stomach, and by a direct microscopical examination supplemented by cultures on Petroff's medium and inoculation of guinea-pigs. After recording several cases showing that open pulmonary tuberculosis may exist without stethoscopic or *x*-ray signs, the author insists that the demonstration of tubercle bacilli in the contents of the stomach must be accepted as conclusive evidence of pulmonary tuberculosis, provided the child is not suffering from tuberculosis of the tonsil or stomach or a tuberculous gland which has broken into the oesophagus, and has not consumed the unboiled milk of a tuberculous cow. He does not accept the suggestion that tubercle bacilli may be innocent incidental occupants of the stomach in the same way that diphtheria bacilli and pneumococci may exist in the mouths of healthy persons. In this connexion he quotes the observations of N. R. Christoffersen, who washed out the stomachs of 30 tuberculin-negative children and did not once succeed in demonstrating tubercle bacilli. As this diagnostic method is both unpleasant and expensive, it should not be resorted to when it is possible to diagnose pulmonary tuberculosis definitely by other means. Poulsen has examined altogether 110 children up to the age of 8 in this way, and has found tubercle bacilli in 53. Among the 62 children under the age of 3 years there were as many as 41 whose stomachs contained tubercle bacilli, whereas among the 48 children over this age there were only 12 harbouring tubercle bacilli in the stomach. Among the 53 positive cases there were only 38 in which tubercle bacilli were found at the first examination, and it should therefore be repeated twice, thrice, or oftener in suspect cases.

530 Types of Enuresis

L. MANDEL (*Brit. Journ. Child. Dis.*, January–March, 1931, p. 1) distinguishes five types of enuretics with their appropriate treatment as follows. (1) Those children in whom some palpable physical irritating stimuli exist, such as worms, overdistension of bladder, or cystitis; in these cases the treatment is obvious. (2) The hypersensitive or neuropathic type which responds to dietetic and medicinal measures, combined with readjustment of the environment and gentle re-education. (3) The so-called psychopathic child, in whom the enuresis is more a behaviour complex, and the treatment required is for the most part psychological. (4) Endocrine dysharmony, particularly hypothyroidism leading to a loss of inhibition; in such cases small doses of thyroid with pituitrin as an adjuvant are indicated. (5) The debilitated child, often convalescent from some illness, for whom general tonic treatment is indicated. In all types atropine or belladonna is the specific drug of choice.

531 Meningococcal Meningitis in Infants

V. CANTALAMESSA (*La Pediatria*, March 1st, 1931, p. 233) records 42 cases of meningococcal meningitis occurring in children between the ages of 1 and 12 months. He remarks that the high mortality in such cases is partly due to the difficulty of diagnosis in the early stages; thus in 22 out of his 42 cases the disease began with irregular fever, restlessness, vomiting, and slight diarrhoea. Rapid pulse and respiration rates with no suspicious signs in the lungs, and associated with only moderate fever, may arouse suspicion, as also should hyperaesthesia. Lumbar puncture often reveals the nature of the malady. The fontanelle is generally tense, but where there is much diarrhoea this helpful sign may fail. Rigidity of the neck, frequently

associated with opisthotonos, was present in every case, and in no instance was there seen the flaccidity of the neck described by Netter. General convulsions were observed in 24 cases, but herpes was not present in any. Some degree of leucocytosis was noted. In four cases the course of the disease was apyretic; two of these patients died. In ten cases there was evidence of some obstruction of the cerebro-spinal fluid, in the form of a persistently tense fontanelle after lumbar puncture; the mortality was very high in this group (9 out of 10). The cases which began with a brusque onset (20) were more usually fatal than those beginning gradually. The duration of the disease ranged widely from three or four days to fourteen or fifteen weeks. Moderate enlargement of the spleen was noted in a few cases. In spite of specific serotherapy the mortality reached as high as 75 per cent.

Obstetrics and Gynaecology

532 Etiology of Eclampsia

R. H. PARAMORE (*Gynécol. et Obstét.*, February, 1931, p. 114) believes in the mechanical origin of eclampsia. He maintains that this condition is not brought about by biological or chemical causes, but by physical ones. As a result of his researches twenty years ago on the evolution of the pelvic floor in vertebrate non-mammifers and in pronograde mammals, it appeared that intra-abdominal pressure was directly interdependent on the general metabolism. As a corollary to this fact he suggests that eclampsia might be a result of changes in the intra-abdominal pressure. It is known that seven out of ten eclamptics are also primiparae. Nearly always the woman is young, active, and strong, working much about the house and eating well. Eclampsia supervenes either at the time when she works more and eats more, or later when she has to submit to violent movements and alterations of abdominal pressure. The kidneys, liver, and colon relieve the blood of waste products which can, if retained, give rise to grave intoxications of which eclamptic crises are examples. These organs depend for their efficiency on the amount of blood passing through them, and this in turn is regulated by the intra-abdominal pressure. The chief difference between the abdomen of the primipara and that of the multipara is the amount of pressure that can be exerted by the abdominal walls. The stronger the woman the more she works and eats, the greater the amount of work thrown on the viscera, and the greater the need for free circulation of the blood. Paramore deals fully with the question why the viscera do not hypertrophy to meet this demand. He instances twin pregnancies (in which eclampsia is four to five times as frequent as in single pregnancy), hydramnios, concealed intrauterine haemorrhage, and hydatidiform mole as parallel conditions in which pressure is increased and in which a toxaemia comparable to eclampsia may be produced. The objection that large intra-abdominal tumours do not cause eclampsia is met by the statement that the growth of a tumour is gradual, and therefore the muscles regulating the pressure have time to accommodate themselves, whereas the increase in size of a pregnant uterus is relatively very rapid, and there is not time for a similar adjustment to take place.

533 Pre-adolescent Ovarian Tumours

Ovarian tumours in children are rare, and a correct preoperative diagnosis is seldom made. R. K. FINLEY (*Surg., Gynecol. and Obstet.*, March, 1931, p. 723) reports the case of a patient, 9 years old, in which, since an immediate operation was not indicated, time permitted of an accurate diagnosis by utero-salpingography. An injection of 3 c.cm. of lipiodol was made into the uterus, and an *x*-ray picture was taken; another 2 c.cm. of the oil was then injected, and a second photograph was obtained. The plates showed torsion of a right ovarian cyst. Torsion of the uterine adnexa before puberty is extremely rare, and such cases seem to fall under three headings: torsion of abnormal adnexa, of normal adnexa in abnormal sites, and of apparently normal adnexa normally situated. These different types are described, and short reports are appended of 25 cases illustrative of each type which have been recorded since 1920.

534 Hydatidiform Mole, Chorion-Epithelioma, and the Zondek-Aschheim Reaction

According to M. REEB (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, January, 1931, p. 94) 50 per cent. of chorion-epitheliomata follow hydatidiform mole, 25 per cent. an abortion, and 25 per cent. pregnancy at term; one in twenty cases of hydatidiform mole is followed by chorion-epithelioma. That a mole is malignant cannot be decided microscopically, and so the probable supervention of chorion-epithelioma cannot be thus predicted. Careful supervision of the patient must continue after expulsion of a hydatidiform mole; until latterly, repeated clinical examinations and curettings were required for early detection of a chorion-epithelioma, but more recently the Zondek-Aschheim urine test, which is strongly positive in chorion-epithelioma, has furnished a more reliable mode of diagnosis. Biological diagnosis is also easier, for in the case of histological diagnosis from curettings it has to be remembered that many chorion-epitheliomata are atypical; sources of error are present, moreover, in the benign chorionic invasions of muscle which occur during and after normal pregnancy, and in the decidual myometrial reaction. Zondek and Aschheim showed that the urine of a patient harbouring living chorionic villi contains a substance which, injected into immature mice, produces in the ovaries follicular haemorrhages and lutein formations; this reaction becomes negative shortly after death of the ovum and four to six days after labour. In the presence of hydatidiform mole and chorion-epithelioma the hormone is found in the urine in ten to three hundred times the concentration of normal pregnancy. The reaction may remain positive for twenty to twenty-five days after evacuation of a hydatidiform mole; if it remains positive longer, even in the absence of metrorrhagia, curetting should be performed and chorion-epithelioma suspected. If after a hydatidiform mole the Zondek-Aschheim reaction becomes negative, and then again positive, either a new conception has occurred, or a uterine or ectopic chorion-epithelioma is present; quantitative findings may here be decisive. A. GINGLINGER (ibid., p. 99) describes a case in which the Zondek-Aschheim test led to the diagnosis of chorion-epithelioma (verified at operation), in the absence of clinical signs or symptoms, three months after expulsion of a hydatidiform mole.

535 Treatment of Eclampsia

H. SCHMORELL (*Zentralbl. f. Gynäk.*, March 14th, 1931, p. 654) records the case of a primipara, aged 30, who became comatose after a second fit of post-partum eclampsia, and whose condition became steadily worse in spite of lumbar puncture, venesection, and Stroganoff therapy. She received 650 c.cm. of 12 per cent. dextrose solution, containing 20 units of insulin and 0.48 gram of euphyllin, by slow intravenous injection lasting two hours. Diuresis speedily became established, and cure followed; later on 20 per cent. dextrose solution had been administered by the rectum. Injections of hypertonic dextrose solution in eclampsia have previously been recommended by Bokelmann and Dieckmann (*Arch. f. Gynäk.*, 1930). The objective of this treatment is (1) to reduce tissue oedema, especially in the brain; (2) to promote diuresis; and (3) to stimulate the detoxicating activities of the liver, in which the glycogen content is seriously depleted.

536 Treatment of the Vomiting of Pregnancy

H. GUGGENHEIMER (*Deut. med. Woch.*, January 23rd, 1931, p. 149) strongly advocates the use of bromides in cases of persistently severe vomiting of pregnancy. He gives, as a clyster, two tablespoonfuls of 10 per cent. solution of sodium bromide at night, and one tablespoonful in the morning. If after a few days the vomiting ceases, the dose of bromide is halved, and the morning dose is omitted or may be given by the mouth. To avoid relapse it is advisable to give 1 to 2 grams of bromide at night for several weeks. The patient is kept in bed during the first week.

Pathology

537 Heart Failure and Metabolism

H. SCHWARZ, H. DIBOLD, and D. RAPPAPORT (*Wien. klin. Woch.*, February 27th, 1931, p. 280) estimated the reducing power of the urine—that is, its content of unoxidized substances—daily for at least six to eight days in a number of normal subjects, and for a longer period in a number of cardiac patients, all kept on a standard diet; they have expressed the result of this investigation in terms of "urinary oxygen deficiency" (Vakatsauerstoff). The figure varied somewhat in normal subjects, but never in these exceeded 10 grams a day; in pathological conditions it might be as high as 30 or 40 grams. The variations were apparently independent of the type of diet, whether pure carbohydrate, mixed, or with low fat content. The cardiac cases examined fell into two groups. Those with a tendency to oedema showed normal or low normal urinary oxygen deficiency values, which increased considerably as the condition improved. The second group comprised cases of heart failure without marked oedema; the urine contained large amounts of unoxidized substances, which diminished again as the general condition of the patients improved under treatment. Further tests showed that the reducing substances responsible were mainly non-nitrogenous, and were to some extent proportional to the amount of lactic acid in the urine. The fact that a fruit and carbohydrate diet increases the lactic acid in the urine, without increasing that in the blood, and is known to have a beneficial effect on the oedema, is regarded as evidence that the increased reducing value of the urine shown in these tests is due to defective intermediate oxidation in the tissues. That it is not directly due to stasis in the liver is shown by the fact that a levulose test on the same cardiac patients did not produce any definite pathological rise in blood sugar. It is suggested that further chemical study along these lines may throw light on the general metabolic changes associated with heart failure.

538 Absorption of Tetra-ethyl Lead

R. A. KEHOE and F. THAMANN (*American Journ. of Hygiene*, March, 1931, p. 478) record experiments on rabbits which show that tetra-ethyl lead is absorbed through the skin. Its initial distribution through the tissues corresponds with that of an oil-soluble material, and it appears, therefore, that some portion of this lead derivative is absorbed and circulates in this form. It is, however, rapidly decomposed by the tissues, including the skin, and so only a small portion of the lead found later in the blood is in the tetra-ethyl form. After a period of from three to fourteen days all the lead in the tissues is distributed in the characteristic form of water-soluble lead compounds. In small doses the factors of rapid decomposition and low concentration in the blood interfere with the distribution of this lead preparation to such an extent as to prevent its primary absorption by the nervous system. Tetra-ethyl-lead poisoning resembles the poisoning produced by other lead compounds, but evidence was obtained by the authors that its absorption from petrol in concentrations not exceeding 0.1 per cent. was not followed by any appreciable results.

539 The Preparation of Tetanus Anatoxin

S. HOSOYA, M. TAKADA, and S. TERAO (*Japan. Journ. Exper. Med.*, February, 1931, p. 33) describe the preparation of anatoxin from a purified tetanus toxin. Anatoxin, as usually prepared by the formolization of broth cultures, contains a number of non-specific substances which are more or less objectionable; moreover, its preparation takes four weeks or longer. The method described by the authors involves the production of a high-grade toxin by growth of the tetanus bacillus in a liver and meat infusion broth for ten days, with subsequent filtration; such a filtrate should prove fatal to mice in a dose of 0.0001–0.00005 c.cm. To it is added 2 per cent. aqueous zinc chloride solution. The toxin comes down in the precipitate, which is washed repeatedly with distilled water and ground up in a mortar. The precipitate is then dissolved in ammonium citrate solution, and the zinc is thrown out by the addition of ammonium sulphide. The zinc sulphide precipitate is removed, and the remaining filtrate is dialysed against running water for twenty-four hours. The non-dialysable fraction, which is neutral, clear, and faintly yellow, contains the purified tetanus toxin, with a lethal dose similar to that of the original crude toxin. To the purified toxin 0.4 per cent. of formol is added, and the mixture is incubated at 37° C. After forty-eight hours it is completely innocuous for mice, even in a dose of 0.5 c.cm. Immunization tests on guinea-pigs and horses indicated that this formolized toxin had considerable antigenic powers; animals injected with it were protected against the injection of toxin or of living tetanus bacilli.

540 Immunization against Typhus Fever

H. ZINSSER and M. R. CASTANEDA (*Journ. Exper. Med.*, March, 1931, p. 325) record experiments in which they succeeded in conferring an appreciable degree of immunity to typhus fever on guinea-pigs by vaccination with a formolized virus. The vaccine was prepared by grinding up infected tunica vaginalis tissue, and exposing it overnight to a saline solution containing 0.2 per cent. formol. Three injections were made in about a fortnight, the dose each time corresponding to one-third of a single tunica. The test inoculations, consisting of a mixture of defibrinated blood and brain of an animal inoculated with European typhus virus, were given seventeen to twenty-one days after the last vaccination. In the first experiment three control animals showed a typical febrile course following inoculation, while in the six vaccinated animals the disease ran a milder course, one animal proving completely resistant. In the second experiment the two control animals showed the usual fever, while three out of five vaccinated animals showed no reaction; of the remaining two vaccinated animals, one showed a typical and the other a modified febrile reaction. In a second paper H. ZINSSER, M. R. CASTANEDA, and C. V. SEASTONE (ibid., p. 333) describe the greatly increased susceptibility to experimental typhus of guinea-pigs and rats fed on a vitamin deficient diet. In such animals the disease is much more severe; the temperature may rise on the day after inoculation, or there may be very little febrile reaction; some of the animals die, and nearly all of them show enormous numbers of rickettsiae in the peritoneum and the tunica vaginalis. Besides being of interest from the epidemiological point of view in suggesting why typhus fever is so closely related to war and famine, these experiments indicate how exudates may be prepared which are very rich in rickettsiae, and which are therefore eminently suitable for the preparation of vaccine.

541 Estimation of Glycaemia

L. PINELLI and A. CORBIA (*Biochim. e Terap. Speriment.*, January 31st, 1931, p. 19) have examined different methods for estimating the sugar content of the blood in healthy and in sick persons, especially those of Folin-Wu, Schaeffer-Hartmann, Hagedorn-Jensen, Jonescu-Mathiu, and Bertrand-Silvestri. They conclude that the methods based on the reduction of salts of iron, especially the Jonescu-Mathiu method, give more constant and less variable results than those involving the reduction of salts of copper. The authors maintain that the minimum and maximum values of blood sugar content should never be regarded as absolute, but only as values relative to the special method employed in the estimation.

542 Actino-sensitivity of Oestrin

F. LUDWIG and J. V. RIES (*Zentralbl. f. Gynäk.*, January 17th, 1931, p. 137) have confirmed the observation of Allen and Ellis that the activity of the oestrus-producing follicular hormone is destroyed by exposure to ultra-violet radiation. They find, in addition, that exposure to the red rays leads to a twofold increase in the activity of oestrin as tested in the mouse, and that red radiation restores the activity of oestrin which has been subjected to ultra-violet radiation. *X*-radiation is without effect on oestrin.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

543 Benign Acute Pulmonary Tuberculosis

G. G. ORNSTEIN, D. ULMAR, and E. L. DITTLER (*Amer. Rev. Tuberculosis*, March, 1931, p. 223) from an experience of 58 cases describe an acute form of tuberculosis which is sudden in onset, of brief duration, and ends in complete resolution. The symptoms are very mild, following a period of perfect health. They consist of a slight cough with scanty expectoration lasting only a few days; haemoptysis, streaked or copious, was an initial symptom in 43 per cent. of the cases. Such haemoptysis associated with slight cough and expectoration, rapidly disappearing and leaving the patient apparently quite well, suggests the acute benign form of tuberculosis, while a history of recent contact with a case of tuberculosis renders the diagnosis practically certain. The *x*-ray findings are important, extensive dense homogeneous shadows developing rapidly and diminishing gradually, or by irregular absorption, producing an appearance suggestive of cavitation. Tubercle bacilli must be searched for early, since they are generally to be found only within the first few days of the onset. In 22 per cent. of the cases there was a definite history of exposure to tuberculosis, and it is essential for such patients to be protected from the possibility of future contact with tubercle bacilli. Complete rest in bed until all *x*-ray evidence of lesions has disappeared is the only treatment needed, and the entire cycle, from the commencement to the completion of resolution, may not be longer than from six to eight weeks.

544 Relapses in Scarlet Fever

A. LICHTENSTEIN (*Acta Paediatrica*, March 15th, 1931, p. 379) states that a relapse in scarlet fever may be defined as the reappearance during the course of the disease of the typical symptoms, especially the exanthem, in which it is possible to produce an extinction reaction by convalescent or antistreptococcus serum. At the Stockholm Epidemic Hospital, of which Lichtenstein is the director, the frequency of relapses in scarlet fever was formerly 0.5 to 0.6 per cent. Recently, however, there had been a striking increase in their frequency, especially since 1925, when the incidence of relapses was 3.9 per cent., rising in the subsequent four years to 7.2, 7.1, 7.5, and 10 per cent. respectively. The relapses were commonest between the ages of 5 and 10 years, and in the third and fourth weeks of the disease, but might occur from the first to the twelfth. In most cases the symptoms were mild, but 56 out of the 213 cases were sufficiently severe to require serum treatment, and 4 out of 377 cases (1.1 per cent.) were fatal. Relapses were less frequent in cases receiving scarlet fever antitoxin or convalescent serum than in cases not so treated. Lichtenstein regards the recent increase of relapses as connected with the mild character of scarlet fever at the present time.

545 Syphilitic Arthritis

I. H. LLOYD-WILLIAMS (*Urol. and Cut. Rev.*, April, 1931, p. 225) states that syphilis of the joints may occur in either the secondary or the tertiary stage of the acquired disease, and also in the congenital form. The earliest manifestation is arthralgia, which frequently accompanies the roseola, and varies in intensity in different cases, being usually worst at night. In the late secondary or early tertiary stage the large joints such as the knees are most frequently affected, usually on both sides. The joints become swollen and more or less fusiform, and there is a variable thickening of the synovial membrane and surrounding tissues. As in other forms of chronic synovitis, there is apt to be some muscular spasm and wasting. The tertiary stage is characterized by gummatous deposits, usually in the perisynovial tissues, but sometimes in the cancellous tissue of the ends of the bones, whence it may invade the cartilage. In congenital syphilis the usual form encountered is a chronic synovitis similar to that seen in secondary syphilis. Charcot's disease occurs in locomotor ataxy, and as the disease progresses causes complete disorganization of the joint.

546 Encephalitis in Undulant Fever

G. SUÁREZ (*La med. Ibera*, March 14th, 1931, p. 389), who records an illustrative case, states that in contrast with the frequency of bronchitis, arthralgia, myalgia, orchitis, anaemia, splenitis, and other complications, involvement of the cerebro-spinal centres in Malta fever is surprisingly rare, although cases of meningitis have been described by Scherb and one of myelitis by Fernando Sanz. The present patient was a previously healthy youth, aged 19, in whom on the ninth day of an attack of Malta fever, contracted from eating goat's milk and cheese, there suddenly developed violent delirium followed by complete flaccid paralysis and insensibility; coma and loss of sphincter control were followed by death. Slight nuchal rigidity during the last two days of life showed that the meninges were involved. The cerebro-spinal fluid was sterile, and showed a well-marked albumino-cytological dissociation, there being only 0.30 gram albumin with 610 cells to the cubic millimetre. No mention is made of a necropsy.

Surgery

547 Torsion and Volvulus of the Stomach

Total volvulus and complete torsion of the stomach are rare and have only recently been recognized as pathological entities. W. A. MORRISON (*Surg., Gynecol. and Obstet.*, April, 1931, p. 871) records a case of almost complete gastric torsion, remarkable because there was a complete interference, with stoppage of blood to the organ, which caused the patient's death. Becker states that a true volvulus is a rotation of the whole viscus between the pylorus and cardia, while torsion is a rotation about the other axis. The factors commonly associated by different authors with each condition are enumerated. Usually the circulation appears to be more or less resistant to the torsion, and is not greatly disturbed. The usual sequel is perforation of the stomach due to distension, unless treatment is instituted or death supervenes. Pathognomonic symptoms are absent. The onset is sudden, with rapid appearance of acute gastric pain, retching, absence of peristaltic movements, perhaps facial cyanosis, and a quick pulse unassociated with high temperature. According to Pilcher, an immediate diagnosis can be made when there is vomiting which suddenly stops and is followed by an immediate increased distension. Immediate operation is imperative. The treatment of volvulus comprises puncture of the stomach, evacuation of gas and fluid, reduction of the torsion, and gastropexy. In torsion due to a stenosis or other conditions, the pathological lesion should be treated by accepted methods. The formation of a fistula may be indicated as a complementary operation.

548 Electro-surgical Scalpel in Renal Surgery

W. W. SCOTT (*New York State Journ. Med.*, April 1st, 1931, p. 394) records notes of five cases operated upon for renal calculi. The electro-surgical scalpel so greatly reduced the haemorrhage that it was only necessary to clamp the vascular pedicle in one of them; in this case it was considered advisable to resect a dilated lower calyx, lest it should become a favourable site for renewed stone formation. Scott remarks that the control of bleeding

permits quicker and better operative work; with the necessity for fewer sutures there is less loss of renal function, since Moore and Corbett demonstrated in 1911 that the suturing necessary to control haemorrhage decreased the kidney function more than the actual sectioning. By eliminating the possibility of renal injury resulting from compressing or clamping the vascular pedicle a distinct advantage is gained, especially when operating for calculi in a sole remaining kidney of low functional value. Since bleeding is very moderate, necessitating but little suturing for its control, the chances of recovery are increased in proportion to the amount of functional parenchyma preserved. A mattress suture, as described by Deming, was used in one of these cases. A combination of the electro-surgical scalpel with the Deming suture is of great value in operations upon the renal parenchyma. A spark-gap generator developing a current which readily cuts and simultaneously seals severed vessels with the least possible destruction of parenchyma is essential. Since the generators have not yet been properly standardized, each machine must be tested on animals.

549 The Latero-posterior Incision for Appendicectomy

A. L. SORESI (*Amer. Journ. of Surg.*, March, 1931, p. 552) describes a latero-posterior incision for appendicectomy which permits direct access to the base and whole of the appendix, and obviates the disadvantages of the abdominal route. This incision, parallel to the axillary line, begins, according to the thickness of panniculus adiposus, more or less close to the twelfth rib, and extends to the pelvis; it runs about 2 cm. behind the anterior superior iliac spine. This exposes in succession the fascia of the external oblique, that muscle, the internal oblique, and the transversalis. The fibres of these muscles are separated, not incised; the peritoneum is incised parallel to the skin incision, thus exposing the caecum, which is grasped and gently pulled upward to reveal the base of the appendix. This incision is ideal only for appendicectomies and not for exploratory laparotomies. It renders appendicectomy safer when severe complications are present, such as retrocaecal appendix and abscess. It decreases shock, obviates packing and much retraction, allows perfect drainage, and does not cause any post-operative complications, such as adhesions or ventral hernia. The procedure is speedier than any other, and can easily be performed under any form of anaesthesia. Moreover, the patients are more comfortable after such an appendicectomy. Pus in a localized abscess can be evacuated without infecting the general peritoneal cavity. A technique is described and advocated for subserous appendicectomy which renders the operation safer, easier, and quicker even if dense adhesions are present.

Therapeutics

550 Treponeme Therapy in Syphilis

G. VERROTTI (*Rinascenza Med.*, February 1st, 1931, p. 57) reports seven cases of syphilitic superinfection as a possible form of treatment. In one case of malignant syphilis the spontaneous lesions disappeared during the development of the induced lesions, while in another less severe case the former disappeared before the development of the latter. In both instances specific treatment was started after the experimental inoculations, and this cured completely the superinfected lesions. There were no recurrences in two years. In another case with neurological symptoms a definite clinical and serological improvement ensued. In every instance the infected material for inoculation was obtained by the author from a primary lesion rich in treponemes and without the interposition of filters or phenol as suggested by Hilgermann; it was inoculated by several scarifications near the primary lesions and also at some distance away. Although in such cases histogenetic immunization plays the greater part, judging from the serological results obtained in every case but one, the author thinks that, indirectly, humoral immunization contributes its share also. The dangers of superinfection suggested by Gougerot seem to be non-existent. The author concludes that his results and those obtained by others seem to justify the possibility of reinforcing in this way the chemotherapeutic treatment of syphilis, thereby obtaining unexpectedly beneficial results in neurological cases also.

551 Administration of Emetine in Amoebic Colitis

A. C. REED (*Amer. Journ. Med. Sci.*, April, 1931, p. 553) considers emetine a powerful, dangerous, and valuable remedy, the complete action of which is at present imperfectly understood. It must therefore be administered with great caution, a careful watch being kept for symptoms of poisoning, which appear in the gastro-intestinal tract, the nervous system, and in the circulatory apparatus. Thus excessive doses in animals cause gastric irritation, with vomiting, melaena, and collapse; in human patients acute diarrhoea may result from rapid overdosage or the cumulative effects of too long continued injections. In the nervous system there may be toxic manifestations, such as peripheral neuritis and oedema of the feet and ankles. Increase of the pulse rate and lowering of the blood pressure are danger signals, as also are dyspnoea on exertion and complaints of weakness. The treatment must therefore be adapted to the individual, but the total amount of emetine given in any one course must not exceed 0.010 gram per kilo of body weight. The injections should extend over ten to twelve weeks, and be started by a series of six daily hypodermic doses of emetine hydrochloride, each of 1 grain (0.065 gram) for adults of medium weight and aged up to 65. These are followed consecutively by six doses each of half a grain, making a total of 9 grains of emetine. Clinical experience points definitely to a maximum safe dosage of 12 grains in a single course. Subsequently arsenic is given by Reed in the form of stovarsol, and then chiniofon (yatren) by mouth and by rectal injections. A week is next devoted to tonic treatment with iron, strychnine, and quinine, and then 1 grain pills of bismuth emetine iodide are given three times a day. When necessary, emetine injections can now be resumed.

552 Oily Solutions of Insulin in Diabetes

H. CHABANIER, C. LOBO-ONEL, and E. LÉLU (*Presse Méd.*, February 14th, 1931, p. 219) report eight cases of severe diabetes where the ordinary aqueous solutions of insulin failed to give satisfactory results or had risen to the limit of safety. By substituting an oily solution excellent results were obtained. Since oily solutions take much longer to be absorbed, they enter the circulation more slowly than the aqueous solutions, and their effect is more continuous, so that a full daily dose in the morning suffices instead of the two or three necessary with aqueous insulin preparations. In some cases it was found possible to reduce the dose to one every other day. The authors do not suggest that oily solutions should replace watery ones in the ordinary case, for with oily solutions much care is necessary in regulating the times of taking food and testing the blood sugar; they reserve them for those cases in which, for one reason or another, it is inadvisable to push aqueous solutions, although the urinary and blood signs are not completely cured.

553 Trypaflavine in Typhoid Fever

M. L. GAWLER (*Thèse de Paris*, 1931, No. 63), who records ten illustrative cases in patients aged from 15 to 28, states that trypaflavine is an eminently bactericidal substance and one of the most powerful antiseptics known. Good results are obtained from its intravenous use in typhoid fever, in which it should be employed in the severest cases which show no tendency to react to other treatment. The administration of trypaflavine should be preceded and followed by estimation of the blood urea content, since the drug is apt to damage the renal cells. The dose injected intravenously should not exceed 0.005 gram for each kilo of body weight. The best dose is 0.2 gram injected every two or three days in a 1 per cent. solution. The most obvious result of the intravenous injection of trypaflavine is the fall of temperature; this is accompanied by improvement in the general symptoms.

Radiology

554 Ureteral Pyelography

A. BOECKEL and A. FRANCK (*Lyon Chir.*, January–February, 1931, p. 5) give their experiences and opinion on the value of examination by pyelography in 575 cases of various lesions of the kidney. Pyelography enables the surgeon, before operation is undertaken, to ascertain the topography and exact anatomical condition of the kidneys. It must not be employed in cases of uraemia, when fever is present, or during a renal haematuria. Before a successful pyelography can be secured the intestines must be evacuated, preferably by an oil purgative, and pulverized animal carbon be given to absorb gas; pituitrin is injected the night before. The opaque solution chosen varies according to the condition suspected, 5 per cent. collargol being used for pyelography of renal lithiasis, 10 per cent. collargol when a large hydronephrosis is diagnosed, and 30 per cent. sodium bromide in the majority of other cases. When sodium bromide is used, not more than 20 c.cm. must be injected into each pelvis; warmed solution is more easily tolerated. A successful pyelogram can also be obtained by means of an injection of air into the ureteral catheter, this method being known as pneumopyelography. The shadows by this means are less clear than with ordinary pyelography, but it has the advantage of being quite painless, and gives more reliable information, particularly in cases of renal lithiasis. Immediately before the pyelogram is to be taken an antispasmodic should be given, and under no circumstances should a general anaesthetic be administered, owing to the danger of over-distension of the pelvis. It is advisable to perform bilateral pyelography, since in cases of small hydronephrosis, of ptosis, and of tumours and their anomalies it is important that a comparison between the two kidneys should be available. Upon the result of the pyelography treatment must be decided, and this form of diagnosis is of special value in cases of renal calculus, nephroptosis, and malformations of the kidneys and ureters.

555 X-Ray Treatment of Primary Malignant Lymphadenoma

P. SCHLANGER and E. W. DE SCHLANGER (*Rev. Sud-Amer. de Méd. et de Chir.*, February, 1931, p. 141) state that in the acute lymphadenomatous type of Hodgkin's disease, seen in young previously healthy subjects, and characterized by the rapid development of large localized tumours and by early cachexia and fever, radiotherapy reduces the size of the tumours but fails to arrest the disease; sero-fibrinous pleurisy appears, indicating the approaching termination. Pleurisy due to mediastinal glandular involvement is not of such grave import, and yields to radiotherapy. In acute lymphadenoma and acute leukaemia, radiotherapy is useless except during an apyrexial period; if fever returns, this treatment should be abandoned. In untreated chronic lymphogranuloma, especially frequent in young subjects, although it may occur at any age, the localized tumours remain apparently stationary, but ultimately all the lymph nodes are involved, with gradual onset of fever and cachexia. Death occurs in from two to seven years. Radiotherapy improves, and sometimes cures, these cases; two patients remained cured after two years. Lymphosarcoma, whether of the spindle-celled or round-celled type, is very sensitive to *x* rays. Complete cure is rare, as the prolonged treatment necessary may cause skin lesions. Treatment should be given at intervals corresponding to the progress of the disease, and even very severe cases may sometimes yield to radiotherapy.

556 Radiography in Antral (Highmore) Diseases

R. G. BROWN (*Journ. College of Surg. of Australasia*, November, 1930, p. 151) believes that *x*-ray examination of the accessory nasal sinuses affords the only means of definitely ascertaining their pathological condition, and that it is an essential procedure in diseases of these cavities, especially when the symptoms are obscure. He deals only with antral conditions, and formulates certain rules for the taking of the plates. Films must be exposed to rays from proper angles and of the correct density; the head, film, and tube must be so fixed that the dense, unrequired structures will fall outside the desired field. Several exposures and positions are necessary; four views and stereoscopic pictures in at least one position should be taken. The patient must be in an upright position, and a Potter-Bucky diaphragm be used. The strength of current employed depends on the individual radiologist. The following four head positions are utilized by Brown: a modified occipito-frontal or postero-anterior, lateral or bitemporal, axial, and an oblique lateral. A series of typical cases illustrating the various conditions encountered in the antra is described. These are divided into two groups: those with alterations in the bony walls, and those with alterations in the antral contents. The former comprise malignant involvement, trauma by penetrating foreign bodies, alteration of the walls and invasion of the cavities by dental and dentigerous cysts, osteitis, osteomas, and conditions following antral operations. The second group includes acute and chronic inflammatory changes, cysts, hydrops, calculi, cholesteatoma, and tumours. In conjunction with D. A. WELSH, Brown also records a microscopical study of several muco-periosteal membranes removed from the antrum.

Obstetrics and Gynaecology

557 The Ureters and Menstruation

By radiography of the ureter after intravenous injection of a substance casting a shadow during its excretion by the urinary tract, O. SAITZ (*Zentralbl. f. Gynäk.*, February 7th, 1931, p. 347) found that two out of every three women showed a dilatation of the ureter during menstruation which was similar to that found in pregnancy. Dysmenorrhoea was reported by all patients showing such dilatation. It was also found in them that drainage of the ureter by a catheter relieved the pains of dysmenorrhoea; these pains returned and disappeared when the ureteral catheter was alternately blocked temporarily and then freed. Saitz is satisfied that in certain patients the sole cause of dysmenorrhoea is ureteral colic, and for such cases uses the term "ureteric dysmenorrhoea."

558 Etiology of Uterine Haemorrhage

C. F. FLUHMANN and DOROTHY L. MORSE (*Amer. Journ. Obstet. and Gynecol.*, April, 1931, p. 455) discuss the relation of uterine haemorrhage to the menstrual cycle and the pathological findings in such cases. Of 1,137 cases of haemorrhage from the uterus, 507 occurred in non-pregnant women, and 630 were associated with pregnancy. In non-pregnant women eight distinct categories were recognized according to the clinical signs. In menorrhagia, with no disturbance of the sequence of events in the menstrual cycle as regards the ovaries and endometrium, the most frequent factor was interference with the contractile power of the uterus, or hyperaemia of the pelvic organs. In the second class there was irregularity in the menstrual time factor, due to ovarian dysfunction, either of a primary endocrine nature or secondary to anatomical lesions. Endometrial proliferation was a third primary cause, possibly associated with infection or hyperplasia of the uterine wall, or with the appearance of submucous fibromyomas and endometrial polyps. Haemorrhage may also occur in the middle of the menstrual cycle at a time corresponding with the rupture of the Graafian follicle, the so-called ovulation bleeding. A type of haemorrhage characterizing hyperplasia of the endometrium is found when the menstrual periods become progressively more profuse or irregular, and end in continuous bleeding. During a period of amenorrhoea in non-pregnant women of child-bearing age haemorrhage may also result from a traumatic or ulcerative lesion of the uterus, following the previous removal or destruction of the ovaries. New growths or inflammation may give rise to bleeding in consequence of trauma

or ulceration of the cervix or endometrium. After the climacteric, irregular haemorrhage may be due to these causes, and in rare cases ovarian new growths may affect the endometrium and thus give rise to loss of blood.

559 Accelerated Growth of Ovarian Tumour after Radiotherapy

G. VOYADZOPOULOS (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, February, 1931, p. 115) quotes a case in demonstration of the fact that insufficient penetration with *x* rays will accelerate the growth of a tumour rather than cause it to shrink. The effect upon the tumour appears to be entirely due to the intensity of the irradiation. Above a certain strength the irradiation is favourable; below, it acts in the opposite way, and appears to excite the epithelial tissue instead of destroying it. The author's patient was a woman, aged 50, who had an inoperable cancerous mass of the right ovary. Ten days after the exploratory operation, her general condition being satisfactory, she was submitted to *x*-ray treatment, being irradiated on twelve occasions for a quarter of an hour at each time, and then discharged. One month afterwards the tumour was found to be considerably larger; in addition, a small tumour had appeared in the left ovary. The patient died one month later. The author considers that the *x*-ray administration certainly accelerated death. Additional confirmation of this view is given in a note by the radiographer, Lehman, who states that while waiting for a new transformer for his apparatus a provisional transformer was installed. The usual apparatus gave a tension of 250 kilovolts, the rays being filtered through 0.8 mm. copper and 1 mm. aluminium. The temporary apparatus gave 150 kilovolts, and the rays were filtered through 0.5 mm. copper and 1 mm. aluminium. The four patients who were treated by the temporary apparatus all presented an aggravation of their lesions at the end of a week, after having received a dose of 4,000 R during this period. The aggravation was most marked in the case in which treatment was least advanced. Lehman considers that treatment applied with a voltage of less than 200,000 excites the growth of a neoplasm.

Pathology

560 Etiology of Disseminated Sclerosis

P. LÉPINE and P. MOLLARET (*Bull. de l'Acad. de Méd.*, March 24th, 1931, p. 512) discuss the morphological and cultural characters of *Spherula insularis*, the micro-organism described by Chevassut as the probable causative agent of disseminated sclerosis. In order to substantiate or refute the findings of this investigator, the present authors conducted a series of experiments on twelve undoubted cases of the disease and six control cases, and also comparative tests of each cerebro-spinal fluid, with either physiological saline solution or artificial cerebro-spinal fluids. Though Chevassut's technique was faithfully followed, Lépine and Mollaret were unable to confirm her findings either by microscopical examination or by a study of the ionic concentration of the culture media. They attribute the microscopical appearances reported (spheres and granules) to flocculation of certain elements of the human serum used in the cultures. No changes were noted in the *p*H of the media which would favour growth of a living virus; such changes as were noted were contrary to this hypothesis.

561 The Intrinsic Carbohydrate Metabolism of the Skin

D. M. PILLSBURY (*Journ. Amer. Med. Assoc.*, February 7th, 1931, p. 426), acting on the evidence that there is an association of a high carbohydrate intake with various disorders of the skin, has undertaken experimental studies on the intrinsic carbohydrate metabolism of the skin. From recent work it would appear that: (1) the skin may serve as a temporary storehouse for large amounts of dextrose; (2) that there is in man a fairly constant ratio between the dextrose content of the skin and of the blood, but that, following ingestion of large amounts of dextrose, this ratio may be disturbed; (3) that the skin contains diastatic and glycolytic enzymes; and (4) that, in common with all other tissues that have been studied, skin cultures *in vitro* give off lactic acid. It has been satisfactorily demonstrated that glycogen is synthesized from blood dextrose in the liver, and probably in the muscles; that lactic acid is formed from muscle glycogen during exercise; and that much of the lactic acid so formed is re-synthesized into glycogen by the muscle and liver. Pillsbury's experiments were directed towards determinations of the lactic acid content of the normal skin of starved and well-fed animals, and study of the formation of lactic acid during the incubation of skin samples. He found that this acid was normally present in the skin, and that its formation *in vitro* was a consistently demonstrable finding in normal skin, except when the skin had been previously frozen. In the presence of dextrose in the incubating medium, especially in phosphate buffer solution, lactic acid formation was increased. The lactic acid level of skin tends, he found, to be low in starved animals and higher in well-fed animals. Decreased oxygen tension has no significant effect on lactic acid formation by the skin *in vitro*. Pillsbury hopes that the value of these experiments lies in the adaptability of the method to the study of the metabolism of the skin in pathological conditions.

562 The Search for B. coli in Water

F. DIENERT and P. ÉTRILLARD (*Ann. de l'Inst. Pasteur*, March, 1931, p. 277) discuss the value of the different methods employed for demonstrating the presence of *B. coli* in a water supply. The usual method in France consists in adding the water to a liquid medium containing 0.1 per cent. phenol. The rationale of this method lies in the assumption that the phenol will inhibit the growth of *B. coli* less than that of other organisms present. The authors consider this assumption doubtful; when other organisms are present in large numbers, and *B. coli* is relatively scarce, then it may be completely overgrown, and its presence not detected. To avoid this disturbing element introduced by the presence in varying numbers of other organisms, they recommend the use of solid media. The organisms in the water are concentrated by the addition of alum, which causes 95 per cent. of them to undergo sedimentation, and the precipitate is then plated out directly, by the pour method, on to a suitable selective medium such as endo or litmus lactose agar. Each organism has then the opportunity to develop, uninfluenced by the activities of other organisms. Besides looking for *B. coli*, the authors strongly recommend the search for organisms of the typhoid-paratyphoid group. For this purpose they use a lead acetate medium, on which *B. coli* produces colourless colonies, and the typhoid-paratyphoid organisms black colonies. These two tests are of considerable value in judging the potability of a given water supply. In practice *B. coli* is often found in contaminated waters in the absence of organisms of the typhoid group, whereas the reverse finding is uncommon. A water that contains neither *B. coli* nor organisms giving black colonies on lead acetate medium they regard as perfectly satisfactory for drinking.

563 Renal Function Tests in Hypertrophy of the Prostate

J. JAKSY (*Bratislavské Lekárske Listy*, March, 1931, p. 122) tested the function of the kidneys in fifty patients with hypertrophy of the prostate, the procedures he employed being: (1) the determination of the blood urea; (2) the estimation of Ambard's constant; and (3) the injection of phenol-sulpho-phthalein. The values obtained were compared with each other and the clinical condition. The author concludes that the most reliable information is obtainable from the phenol-sulpho-phthalein test. Disturbances of the hepatic circulation may retard the elimination of the dye, but any operation is known to be contraindicated in such cases. Prostatectomy was undertaken whenever more than 40 per cent. of the injected phenol-sulpho-phthalein was eliminated within the first seventy minutes, and in no single case did any post-operative renal complications appear.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

564 Agranulocytosis

W. DAMESHEK and M. INGALL (*Amer. Journ. Med. Sci.*, April, 1931, p. 502) report 9 cases of agranulocytosis (termed malignant neutropenia), of which 4 were typical of the angina agranulocytica of Schultz. Two were infantile cases, which is rare; two patients recovered. In one case arsphenamine injections were a probable etiological factor. Six patients were in the fourth decade of life. Though the disease is said to be more frequent in women, in this series the sexes were equally divided. The onset was usually with fever, chill, and sore throat; the high fever and marked prostration were at times out of all proportion to the very few physical signs. The outstanding laboratory finding was marked leucopenia; in severe cases the leucocytes may be so few as to be practically uncountable. As the disease progresses, not only does depression of the granulocytic tissue occur, but also marked depression of lymphoid and reticulo-endothelial tissue, so that the numbers of lymphocytes and monocytes become much reduced. In atypical cases without angina the differential diagnosis from blood dyscrasias may be difficult. Recoveries, if they occur, are spontaneous. Rational treatments are repeated transfusions, foreign protein therapy, and irradiation over the long bones. Numerous theories of the pathogenesis of the disease have been advanced; the present authors agree with Stocké that it is not a special disease but an abnormal reaction to sepsis. On the other hand, C. W. BALDRIDGE and R. J. NEEDLES (ibid., p. 533), from a study of four cases, conclude that the neutropenia was primary and the infection secondary. They emphasize the similarity between aplastic anaemia, aleukaemic leukaemia, and idiopathic neutropenia, and discuss the similarities which the latter condition bears to anaphylaxis and the Schwartzman reaction.

565 Choleriform Syndrome in Infantile Diphtheria

A. M. CROSS-LEBOURLIER (*Thèse de Paris*, 1931, No. 28) records eleven illustrative cases in infants aged from 17 days to 5 months, and states that diphtheria plays a very important part in the causation of the choleriform syndrome in infants which is characterized by sudden onset of choleriform diarrhoea, apyrexia, and rapid improvement after the injection of diphtheria antitoxin. Complete recovery, however, ensues only in cases due to the Klebs-Loeffler bacillus alone. The choleriform syndrome may be due to a mixed infection of the diphtheria bacillus and staphylococcus, either simultaneously or successively. In such cases, after improvement following diphtheria antitoxin, death follows from complications (probably due to the staphylococcus) such as suppuration or a recurrence of the choleriform syndrome. Congenital syphilis, evidence of which may be found during life or only at the necropsy, seems to predispose to the occurrence of the choleriform syndrome.

566 Herpes Zoster with Varicella

R. R. MCCORMICK (*Journ. Amer. Med. Assoc.*, March 7th, 1931, p. 766) records four cases of herpes zoster among persons in contact with one another during an epidemic of varicella. In the case of a man aged 23, a generalized vesicular eruption closely resembling varicella, and involving the skin of the entire body and the extremities, developed on the twelfth day of herpes zoster. Death ensued on the nineteenth day from general sepsis. No cases of varicella resulted from contact with this patient during the period of the generalized eruption. Post-mortem examination showed severe inflammatory and gangrenous lesions in all the layers of the skin, and a posterior poliomyelitis involving the posterior root ganglia, which were very friable and haemorrhagic, and the posterior half of the spinal cord.

567 Oxycephaly with other Malformations

H. SAETHRE (*Norsk Mag. f. Laegevid.*, April, 1931, p. 393) records a case of oxycephaly in a woman, aged 32, associated with a giant hairy naevus on the back, bone defects in the bodies of the cervical vertebrae and sacrum, and signs of increased cerebral pressure as shown by *x*-ray examination and lumbar puncture. Migraine with a retarded physical and mental development, as well as with a tendency to severe hallucinatory depression, was regarded by Saethre as connected directly or indirectly with the cranial deformity. The patient's mother and half-sister had oxycephaly, homologous syndactylism, and crooked fingers. The author has also seen a case of oxycephaly associated with malformation of the eyelids in a family where the father and three children (one daughter and two sons) had these deformities, while the mother was normal, as well as an isolated case of a woman in whom oxycephaly was associated with ptosis, syndactylism, and dystrophic hands and fingers. The combination of oxycephaly with other malformations is attributed to early embryonic disturbances. Similar malformations have been produced experimentally by treating the mouse embryo by *x* rays.

Surgery

568 Litholapaxy

J. R. CAULK (*Annals of Surgery*, April, 1931, p. 891) discusses the advantages and disadvantages of the suprapubic removal of stone from the bladder, as compared with litholapaxy. He considers that the latter is the ideal procedure for simple uncomplicated stones in the bladder, and that it may be employed even when a good number of stones are associated with other conditions. In 225 patients with vesical calculi the average age was 56.6 years; 197 cases occurred in males and 28 in females. The largest number of stones was found in patients between the ages of 60 and 70. About 25 per cent. of cases had an association of upper urinary calculus. Associated prostatic enlargement was present in 116 cases, and obstruction in some form or other in 55.8 per cent. of all cases. Out of the 196 operations performed, litholapaxy was employed in 112 cases, and vesical diverticulum, carcinoma of the bladder, and severe cystitis were not considered to be contraindications; many cases showing one or other of these complications were successfully treated by litholapaxy. The size of the stone, within reasonable limits, offers no difficulty to this form of treatment, and often the larger the stone the softer and easier it was to crush. In simple cases a local urethral anaesthetic is sufficient, but in the majority of cases caudal and twilight anaesthesia have been found to be the most satisfactory. Repeated litholapaxies, at intervals of about a week, have been more successful than a one-stage operation, and post-operative instillations of *B. bulgaricus* have given good results. Where repeated crushings are required an indwelling catheter is used, and careful attention given to the bladder. In 112 cases of litholapaxy, there was only one death and very few cases of post-operative complications. The average duration of stay in hospital was ten days, simple cases being dischargeable in two or three days. There was recurrence in 7.1 per cent. of cases.

569 Gastric and Duodenal Ulcer

M. WEINSTEIN and J. P. MCHUGH (*New York State Journ. Med.*, April 1st, 1931, p. 391) summarizes the records of 50 cases of acute ulcers of the stomach and duodenum admitted to the St. John's Long Island City Hospital during the past two and a half years. The youngest patient was aged 19 and the oldest 72; 88 per cent. of the patients gave a history of indigestion. Spinal

anaesthetic is considered by the authors to be the anaesthetic of choice; it was employed in ten of the cases, and only one death occurred, the patient being an emaciated old woman in whom perforation had ensued 22 hours before operation. In one instance, with recovery, the interval between perforation and operation was 29 hours. Simple closure of the perforation was adopted in 46 (92 per cent.) of the cases, and in the majority the omentum was sewn over the suture line for reinforcement. Gastro-enterostomy at the time of closure was performed in only one case, in which the suture of a large perforation considerably narrowed the duodenal lumen. Most patients remained free from a recurrence of symptoms, provided that a restricted diet was adhered to; early cure results from simple suture if the proper post-operative medical treatment is followed. In the event of the condition progressing a secondary gastro-enterostomy can be performed later. In the opinion of the authors gastric resection is too radical to be consistent with a low primary mortality.

570 Tenodesis in Paralysis of the High Adductors

TAVERNIER (*Lyon Chir.*, March–April, 1931, p. 177) records the case of a girl, aged 8, who suffered from serious loss of power in the left leg as the result of infantile paralysis. The thigh, owing to paralysis of the adductors, was in abduction and marked flexion; the position of the pelvis, assumed to overcome this abduction, had caused a high degree of scoliosis. Though the hip and knee were stabilized by preliminary operations, the muscular paralysis persisted. The age of the child prohibiting arthrodesis, and her growth necessitating constant change of apparatus, Tavernier decided to replace the paralysed great adductor by an inhibiting tendon, employing the tendon of a stillborn calf, which had been preserved in alcohol; such material had given excellent results in previous tendon restorations. The operation is described. The marked improvement which followed has lasted for four months. As a rule, the more stable bony grafts are preferred to tendinous ones owing to the progressive relaxation of the latter. However, Tavernier hopes that the improvement will be maintained, since the antagonist adductors were partially paralysed and had lost their normal power. Should the tendon lengthen more than the growing femur it can be shortened, and arthrodesis or arthrorisis performed when the age and ossification of the hip permit. The result in this case conforms to the conclusions of Nageotte as to the functional value of heterogeneous tendons.

Therapeutics

571 Antigangrene Serum in Scarlet Fever

A. STROË, D. HORTOPAN, and J. BAZGAN (*Rev. franç. de pédiat.*, 1931, No. 1, p. 23) state that since the war scarlet fever has been endemic in Bucarest, more than 1,500 cases having been admitted annually to the Children's Hospital. The increasing severity of the disease is shown by the fact that, whereas up to September, 1929, necrotic angina occurred in only about 2 per cent. of the cases, during last year its frequency had been as high as 7 per cent. Local treatment was not only useless, but might even prove dangerous, owing to its liability to aggravate the lesions and to spread the infection to the Eustachian tube and middle ear. The Dicks' scarlatinal antitoxin also proved inefficacious. Owing to the success obtained by injection of antigangrene serum in a case in which the bacteriological examination of cervical adenitis accompanied by gaseous oedema showed the presence of *B. perfringens*, the authors were encouraged to make use of antigangrene serum in cases of necrotic angina; they found that the results were more likely to be successful when the injections were given early and in large doses. The serum employed was polyvalent, and was composed of four different serums mixed in the following proportions: anti-*perfringens*, 40 per cent.; anti-*vibrion septique*, 30 per cent.; anti-*oedematiens*, 20 per cent.; and anti-*histolyticum*, 10 per cent. Of 70 patients, 39 being seriously ill, treated by antigangrene serum, 61 recovered and 9 died—a result which may be regarded as remarkably favourable in view of the fact that the usual mortality of severe necrotic angina is 80 per cent. Records are given of 15 illustrative cases in children aged from 2 to 15 years.

572 Sanocrysin in Pulmonary Tuberculosis

STUB-CHRISTENSEN (*Ugeskrift for Laeger*, April 2nd, 1931, p. 353) reports from the Silkeborg Sanatorium in Denmark observations on 438 cases of pulmonary tuberculosis in which treatment with sanocrysin had been completed by April, 1930. In 54 of these cases this treatment had been supplemented by other measures such as artificial pneumothorax. In the remaining 384 cases the only supplement to the injections of sanocrysin was ordinary sanatorium treatment. The cases were classified according as they belonged to the first sanocrysin period, with as a rule large doses, or the second period, with comparatively small doses. The results in the first period were not so good as in the second, the percentage of patients becoming sputum-negative being 55 as compared with 70 in the second period. Stub-Christensen does not trace this improvement in the percentage of successful results unreservedly to the reduction in dosage; he is more inclined to associate this improvement with a more discriminating selection of patients for this treatment in the second period. In the first period albuminuria occurred in 84 per cent., in the second period in only 13 per cent. Intestinal complications were reduced from 43 to 3 per cent., and the incidence of a rash from 39 to 10 per cent. The class of case found to be most suitable for sanocrysin treatment was the early case without cavity formation. Next, in order of their suitability, came early cases with cavities, mixed cases, and fibro-cavernous cases. There were twelve deaths among the 438 patients, and in two cases the sanocrysin was certainly responsible. The dosage in the earlier period usually began with 0.25 to 0.5 gram, succeeding doses of 1 gram, at intervals of three to five days, being injected until a total of 5 to 7 grams had been given. In the second period the initial dosage was 0.05 to 0.1 gram. The amount was then gradually increased to a final dose of 0.5 gram, and, in the last 75 cases, only to 0.3 gram. No injection was repeated till any reaction it might have caused had passed off. Three clear days were allowed between the first and second injections if the former had caused no reaction, and four clear days between the subsequent injections. The total dosage in most of the cases in the second period was 4 to 5 grams.

573 The General Therapeutic Value of Ergotamine

Besides the action of ergotamine and related substances on the uterus, an effect is produced on various parts of the sympathetic nervous system, and particularly a depressing or paralysing influence on the motor elements of that system which are stimulated by adrenaline. J. B. YOUMANS, W. H. TRIMBLE, and HELEN FRANK (*Arch. Int. Med.*, April, 1931, p. 612) describe a series of experimental and clinical studies devised to determine the action of ergotamine on the basal metabolism, circulation, and blood sugar content of normal persons, and of patients suffering from thyrotoxicosis. They report that in single subcutaneous doses of 0.5 mg. ergotamine had no significant effect on the basal metabolic rate or the fasting blood sugar level of normal human subjects, but the pulse rate was slowed and the diastolic pressure was slightly, but definitely, raised. The administration of 1 mg. by mouth, three times daily, for several days, also failed to modify the basal metabolic rate. In patients with thyrotoxicosis the action on the pulse rate and blood pressure was generally greater, and a rather higher individual variation was noted than in normal subjects. It is concluded that many of the reported instances of lowered heat production, slowing of the pulse rate, and alteration in the blood pressure following the administration of ergotamine should not be attributed to the action of this drug, but to failure to secure a true basal condition at the beginning of the experiment. The slowing of the pulse is not to be attributed to depression or paralysis of the accelerator nerves of the heart, but to a stimulating or sensitizing action on the vagus.

Ophthalmology

574 The Operative Treatment of Glaucoma

E. DE GRÓSZ (*Arch. of Ophthalmol.*, March, 1931, p. 327) reviews the history of glaucoma and its treatment. In attempting to compare the efficacy of the various operations, the issue is somewhat clouded by the nebulous state of the classification of the disease. The present author adopts Graefe's nomenclature: (1) inflammatory or congestive glaucoma (prodromal, acute, chronic, absolute, degenerative; (2) simple glaucoma; and (3) juvenile glaucoma. Discussing the various operations, de Grósz states that trephining gives good results in 83 per cent. of chronic congestive, and in 68 per cent. of absolute glaucoma. Cyclodialysis is beneficial in 48 per cent. of absolute (18 per cent. five years after); in 78 per cent. of chronic congestive (55 per cent. five years after); and in 88 per cent. of simple glaucoma (75 per cent. five years later). Iridosclerotomy proved effective in 94 per cent. of simple glaucoma (76 per cent. after some years). Cyclodialysis, causing the least disturbance, may be repeated several times, and if after several attempts the tension is not reduced trephining should be tried. Iridosclerectomy is only performed in simple cases which are controllable with pilocarpine. Iridectomy is employed for prodromal and acute congestive glaucoma, anterior sclerectomy for the juvenile form, and enucleation for degenerative cases. Though glaucoma has been kept in check for thirty-five years with myotics, operation is practically always required, and is still the best treatment.

575 Argyrosis of the Cornea

B. FRIEDMAN and A. RÖTTH (*Amer. Journ. Ophthalmol.*, December, 1930, p. 1050) report that in ten out of twelve cases of conjunctival argyrosis slit-lamp examination reveals the presence of the same condition in the cornea. In countries where trachoma is prevalent, argyrosis of the conjunctiva is so frequent that, perhaps for this reason, a concomitant argyrosis of the cornea is overlooked. This condition is most marked at the limbus, and diminishes towards the centre; it becomes a little more pronounced again at the upper limbus. The colour variation between the strongest and weakest cases may be brown, yellowish gold, yellowish green, greenish blue, and ultramarine. The pigment layer appears in most cases to be finely stippled; it lies at the posterior surface of the optical section, and probably between Descemet's membrane and the endothelium. In severe cases, in both cornea and lens, the precipitate between the cell layer and glass membrane seems to pile up from the cell layer towards the glass membrane. In some cases there is also argyrosis of the lens, which appears as a yellowish reflex from the anterior capsule, and as a diffuse yellowish colouring of the posterior cortex. In nearly all cases the scleral conjunctiva is tinged with gold. One patient, aged 41, had had bilateral trachoma for seven years. He had been using silver nitrate, two drops in each eye, almost daily. With the slit-lamp the conjunctiva of each eye showed argyrotic changes. The golden colour of the bulbar conjunctiva was visible by retro-illumination as a homogeneous tint. In the lower third of each cornea the deepest layers were stained deep gold, more pronouncedly near the limbus. The pigmentation was homogeneous. The anterior capsule of each lens threw a very marked golden reflex, more intense in the lower part of its periphery. No opacities were present. The iris, vitreous, and fundi were negative.

576 Ocular Hypertensive Conditions

Ocular hypertension secondary to arterial hypertension is usually attributed to glaucoma, but P. BAILLIART (*La Médicine*, January, 1931, p. 24) denies this, holding that there is only a very indirect relation between the two. In generalized hypertension there is usually no ocular increase; there may even be ocular hypotension. On the other hand, all glaucomatous subjects are not hypertensive. One cause of failing vision in glaucoma is an elevation of the tension of the ocular media above that of the retinal arteries, thus arresting their circulation; the extent of this arrest determines whether the ensuing blindness shall be partial or total. The lowest retinal arterial pressure is half that of the vitreous; if this equilibrium is disturbed the retina is imperilled. In acute glaucoma, measures which lower the pressure, such as venesection or brisk purgation, tend to aggravate this want of equilibrium. Bailliart believes that the ocular complications of arterial hypertension must be studied in the retina, and he discusses the production of retinal changes such as haemorrhages, papillary oedema and stasis, and venous thromboses. The appearance of retinal, as of cerebral, lesions is of grave prognosis in hypertension. The aspect of hypertensive retinitis is analogous to that of the albuminuric form; arterial hypertension is the basis of each, and the first symptom in both is a vaso-dilatation of the vessels of the optic nerve and retina. The former will assume the albuminuric type if renal insufficiency is present. However, the second can exist without, or be only slowly manifested by, signs of albuminuric retinitis. Therefore, in all cases of retinal hypertensive lesions, attention should be paid immediately to the kidney.

Obstetrics and Gynaecology

577 Lower Caesarean Section

V. B. GREEN-ARMYTAGE (*Indian Med. Gazette*, April, 1931, p. 184) commends the operation of Caesarean section of the lower uterine segment, since it preserves the life of the mother and child and is attended with a far lower mortality rate than is craniotomy. In 104 craniotomies in the Eden Hospital, Calcutta, the maternal mortality rate was 32.69 per cent., whereas in 75 cases of lower Caesarean section, clinically comparable, there were only eleven deaths (14.66 per cent.). The author uses de Lee's vertical incision through the lower uterine segment, and sometimes the transverse incision of Hendry. He remarks that this operation can be performed late in labour, and after the unsuccessful application of forceps, provided that the foetal heart sounds are audible and over 100 per minute. The incision heals better than in the classical Caesarean operation because it does not involve a contractile portion of the uterus. It is fully covered over by the peritoneum, which is an important barrier against infection, and the catgut stitches need not be pulled tightly, because they are only used for the approximation of the wound edges, and not for haemostasis, as in the classical incision. There is very little post-operative haemorrhage and no shock, the whole procedure lasting less than half an hour. There is hardly any risk of secondary rupture of the scar—a sharp contrast with the usual 4 per cent. incidence after the classical operation. In many cases, when the liquor amnii was decomposing, it was possible to drain successfully the operation area with a tube introduced subrapubically into each lateral sulcus of the lower part of the abdomen. The patients do not suffer from the distension, vomiting, and exhaustion which so frequently follow the classical operation. According to the author the maternal mortality with this operation in Chicago has fallen below 2 per cent., and he believes that his own statistics will improve when better conditions are established for the patients as regards early treatment of the labours on hygienic lines and the prevention of any septic infection.

578 L. E. PHANEUF (*Amer. Journ. Obstet. and Gynecol.*, April, 1931, p. 498) states that cervical Caesarean section in America is gradually replacing the classical form. He reports an investigation of 418 cervical sections, of which in 198 the incision was transverse, in 160 longitudinal, in 58 transperitoneal, and in 2 extraperitoneal. He agrees that this operation provides protection against septic peritonitis, better healing of the incision, and an easier convalescence. The uncorrected maternal mortality in his series was 5 per cent., and the best maternal mortality statistics were obtained in the 198 consecutive transverse sections, where it was 3 per cent.

Pulmonary embolism was responsible for 1.19 per cent. of the deaths. This complication is frequently associated with any form of Caesarean section, and has to be borne in mind when an abdominal delivery is contemplated. The cervical procedure is easily repeated, if required; the highest number performed on one woman was six.

579 Ovarian Cancer

P. MOULONGUET and L. MALLET (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, March, 1931, p. 151) do not consider malignant ovarian tumours varieties of the same type of neoplasm; they maintain that these differ entirely from one another in their histogenesis, clinical nature, and evolution. They are classified as follows: seminoma; folliculoma; malignant vegetating papilloma; endodermoid epithelioma; degenerated teratoma (often containing chorion-epithelioma); fuso-cellular sarcoma; lympho-sarcoma; carcinoma secondary to a Krükenberg tumour; and exceptional types, such as pavement-celled epithelioma and ganglioneuroma. Some of these (the seminoma, folliculoma, etc.) are radio-sensitive; others, as the vegetating papilloma, are radio-resistant; the results of irradiation in any case will depend, therefore, on the type of tumour. Five cases, with the results following radiotherapy in each, are recorded. These indicate that in certain types radiotherapy is most valuable and should be employed; it must be commenced early, and be applied over all the parts capable of being invaded through the peritoneum or lymphatics. Patients tolerate these extensive irradiations very well, and no ill effects due to anaemia or massive resorption have been recorded. Metastases, whatever their seat or number, should be similarly treated. A. BÉCLÈRE (ibid., p. 160) cites further cases illustrating the efficacy of *x* rays in ovarian cancer. Among other conclusions he states that the rays employed should be very penetrating, highly filtered, and emitted at a great distance; also that the fractional method by doses at suitable intervals is preferable to intensive treatment by massive doses in a short time.

580 Anaesthetization of the Lumbo-aortic Plexus

E. ABUREL (*La Gynécol.*, March, 1931, p. 163) describes the technique of injection of the lumbo-aortic plexus with novocain or percaine. The plexus, lying on the front of the fifth lumbar vertebra near the aorta, is reached by insertion of a long needle half-way between the last rib and the iliac crest on the left. In spontaneous labours pain is much diminished in the abdomen, loins, and thighs, without being affected in the perineum and sacrum. In obstetrical operations the cervix is rendered insensible to dilatation, and the corpus uteri to intrauterine manœuvres. According to the same author (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, January, 1931, p. 35), this mode of local anaesthesia may be supplemented during the expulsive stage of labour by epidural injection, or by bilateral infiltration of the perineum from the coccyx to the external abdominal rings. Two cases are recorded (ibid., p. 34) of severe hyperemesis gravidarum which yielded to two anaesthetic injections of the lumbo-aortic plexus ; the effect is ascribed to severance of the utero-gastric reflex path.

Pathology

581 The Mode of Action of Vitamin D

L. J. HARRIS and J. R. M. INNES (*Biochem. Journ.*, 1931, xxv, No. 1, p. 367) record experiments on rats undertaken to elucidate the mechanism of production of hypervitaminosis D. It is known that an excessive amount of irradiated ergosterol may lead to undue calcification in bones and arteries, and to an increased quantity of calcium in unstriated muscle. The present work indicates that vitamin D exerts a profound effect on the metabolism of calcium and phosphorus. The ingestion of abnormal quantities of vitamin D gives rise to an increased titre in the blood of calcium and phosphorus, with a tendency to deposition of calcium in certain sites. Vitamin D deficiency, on the other hand, such as occurs in rickets, leads to a fall in the calcium and phosphorus in the blood, and to a consequent failure in the normal degree of calcification of the bones. In hypervitaminosis D the increased calcium in the blood is derived both from the calcium in the food, owing to greater absorption from the gut, and from that in the bony stores; the relative importance of these two sources of supply is determined by the available calcium in the diet, and by the degree of vitamin D excess. To compensate for the increased blood calcium and phosphorus the kidney responds by an abnormal urinary excretion of these two substances. The authors believe that vitamin D can act independently of the parathyroid, for that hormone seems to raise the blood calcium solely by withdrawing it from the bones, and without increasing the net absorption from the gut.

582 The Causal Organisms of B. coli Pyuria

M. FRANK (*Arch. f. Kinderheilk.*, February 23rd, 1931, p. 254) has investigated 31 cases of pyuria in children, 26 being infants and 5 older children. Catheter specimens were collected and cultivated on media. The resulting colonies were tested as to fermentation with the customary sugars—hexose, saccharose, maltose, mannite, and lactose; in addition, rhaminose, dulcite, adonite, sorbite, inosite, and arabinose were used, and some glucosides. For further differentiation Frank used the salicin, aesculin, and phloridzin tests, and estimated the capacity for indol formation and haemolysis. Fifteen different types of *B. coli* were found. The most frequent was one which behaved like *B. neapolitanus;* the next was *B. coli communior*, then *B. coli commune*, and finally a type which differed from *B. neapolitanus* in not fermenting dulcite. The other types were found only in single cases. Swabs were then taken from the vagina of some healthy babies; on culture a number of *B. coli* groups were found, and on further testing they proved to be identical with those causing pyuria. A similar investigation of the genital mucous membrane in male infants showed only scanty *B. coli*; to this fact may be due the relative infrequency of *B. coli* pyuria in male children. In examining the faeces of children fed on different diets it was found that the *B. coli* strains which fermented sugar were most numerous where the diet was rich in starches, and less frequent where it was richer in fats. The strains appearing most often in pyuria were found also particularly common in the intestines of artificially fed infants, most of them being also present in the vagina and intestines of healthy children of the same age.

583 Etiology of Encephalitis in Childhood

H. KNAUER and P. A. JAENSCH (*Jahrb. f. Kinderheilk.*, February, 1931, p. 265) report that by inoculation of the cerebro-spinal fluid containing the virus of encephalitis on to the cornea of a rabbit by Grüter's method a slight reaction was produced resembling superficial keratitis punctata; it was only visible with a powerful corneal microscope and a slit-lamp. Serial investigations showed that the virus of encephalitis was much more frequently found in the cerebro-spinal fluid than had hitherto been supposed. Positive reactions were obtained in all the cases of encephalitis examined, including those following influenza, whooping-cough, measles, and vaccination. The virus can be found in the spinal cord in cases of chronic encephalitis many years after the onset, and even in patients who have recovered. That the substance is a living virus and not a toxin is shown by its successful passage through animals. The virus is extremely resistant to cold, and can survive for months in the ice chest. Healthy persons can harbour the virus without becoming ill themselves, but are able to infect others. Well-known organisms such as staphylococci, streptococci, influenza bacilli, meningococci, and tubercle bacilli and their toxins can never produce keratitis punctata in the rabbit's eye, and if these organisms are present at the same time as the virus of encephalitis they generally disappear in the course of the disease. Inoculation of the measles virus does not give rise to keratitis punctata. The conclusion therefore appears justified that in post-infective encephalitis the virus of true encephalitis is still the cause of the condition.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

584 Dissecting Aortic Aneurysm Simulating Pulmonary Neoplasm

A. CLERC, P. N. DESCHAMPS, and R. SCHWOB (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, March 2nd, 1931, p. 280) describe the case of a woman, aged 53, who had experienced for two months stabbing pains in the left side of the chest. The patient was cachectic and moderately dyspnoeic. Examination revealed dullness, diminished fremitus, and weak breath sounds over the left base, and extending up to the mid-scapular region. No physical signs were found in the cardio-vascular system. Radioscopy showed a concise rounded shadow almost filling the left side of the chest and separated from the clavicle and the diaphragm by narrow zones of normal density. Exploratory puncture produced a brownish haemorrhagic fluid, and a diagnosis of pulmonary neoplasm was made. During succeeding months the signs became more marked, and a horizontal zone of tenderness extended across the left breast and axilla. A further puncture withdrew sero-fibrinous fluid. Following an acute onset of respiratory symptoms with fever, death ensued ten months after the beginning of the illness. At the necropsy there was found a small purulent effusion in the left pleural cavity. The left lung was flattened, and formed a thin layer surrounding a large mass which appeared to extend from the mediastinum, and which contained degenerated blood clot. The aorta, arising from a small heart, was widened and atheromatous, and extended only as far as the transverse arch, where it merged with the mass, which was evidently a dissecting aneurysm. The authors remark that while in this case the signs justified a diagnosis of pulmonary neoplasm, it occasionally happens that a lesion having all the appearances characteristic of aneurysm is found at necropsy to be a new growth. Absence of pulsation on screening a mediastinal mass is in favour of the existence of aneurysm rather than a contraindication of it.

585 Anal Chancre

A. A. LANDSMAN (*Med. Journ. and Record*, April 1st, 1931, p. 328) believes that anal chancre occurs more frequently than has been stated by various authorities, and records three cases. The diagnosis has to be made from simple fissure—an acutely painful but clean surgical lesion, except when local infection occurs. A fissure is single, and is situated usually in the posterior median line; ulceration, excoriation, and discharge are rare unless there has been previous rectal disease. On the other hand, chancre has a less acute onset, and its course is more chronic. There may be multiple lesions which are not in the median line, with dermatitis, superficial anal ulceration, and a peculiarly fetid serous discharge. Spirochaetes may be found on dark field examination. The inguinal glands are enlarged and tender. The Wassermann reaction may be negative until secondary symptoms occur. Landsman failed to find any induration of the base of the chancre, such as occurs in the genital chancre, or condylomata. The serious nature of chancre and the possibility of syphilis being communicated to others render the differential diagnosis and subsequent treatment of the utmost importance.

586 Direct Transmission of Herpes Labialis

Despite the numerous observations and experiments of recent years on the infective nature of herpes simplex, there is as yet no evidence that in the human subject it is normally spread by direct contagion, though in the case of herpes labialis opportunities for such spread must be very frequent. K. SCHEER (*Münch. med. Woch.*, April 10th, 1931, p. 613) records that, of his own two children, the boy suffered from periodic attacks of herpes labialis, usually on the lower lip, while the girl had never suffered from herpes. In December, 1926, she had typical bilateral herpes zoster on the back, and two days afterwards the boy developed varicella. There was thought to be an association between the two conditions, but fourteen days later still the girl, whose herpes had now healed, also developed varicella. In May, 1930, the boy, who was suffering from one of his periodic attacks of herpes labialis, bit his sister on the chest in the course of a bedtime scuffle. The teeth marks were definite, and pigmentation of the area was still present when, eighteen days later, a typical herpetic eruption developed at the site of the bitten skin. The author comments that the incubation period here was longer than that which has been recorded in the experimental transmission of herpes.

587 A Confirmatory Physical Sign in Ascites

As a confirmatory diagnostic sign of ascites, J. T. WITHERSPOON (*Journ. Amer. Med. Assoc.*, March 21st, 1931, p. 944) suggests that in such cases, when one side of the abdomen is tapped with the finger and the other side is auscultated, two sounds similar in timing to normal heart sounds are heard. The first is caused by transmission of the sound wave through the fluid; the second is the result of the fluid wave crossing the abdomen and striking the auscultated side. This sign was present in 18 cases of ascites examined, and was confirmed by abdominal aspiration, operation, or necropsy. It was not present in cases in which the usual physical signs were absent, nor in abdomens markedly distended with gas.

588 Ocular Manifestations of Syphilitic Serous Meningitis

J. ROLLET and PAUFIQUE (*Journ. de Méd. de Lyon*, March 20th, 1931, p. 193) state that syphilitic serous meningitis occurs mainly in young infants, in the congenital, and in the secondary or tertiary stage of acquired syphilis. Records of the pathology are few, since most cases are cured, but there may be an ependymitis or internal hydrocephalus, a diffuse serous meningitis, a mixture of these, or a localized cortical or basal meningitis. Prodromal symptoms include headaches, nausea, constipation, buzzing in the ears, and pseudo-migrainous attacks; these are followed by violent headaches, vomiting, obstinate constipation, and a slow pulse, with no great change in the general condition, no meningeal symptoms, and no pyrexia. The ocular signs which dominate the clinical picture, and are diagnostic, are papilloedema (the measurement of which is of no diagnostic importance), indications of intracranal hypertension, shown by hypertension in the central retinal artery, bilateral mydriasis, and paresis of the sixth cranial nerve. The visual acuity long remains normal, a change in the fields indicating an intracranial tumour. There may be associated syphilitic ocular lesions, or general signs of the disease. The cerebro-spinal fluid is under pressure without cytological modification. The prognosis is good with early diagnosis, and the treatment should include frequent lumbar puncture, the exhibition of hypertonic solutions, and the administration of antisyphilitic remedies.

589 Measles Encephalitis

E. C. BENN (*Brit. Journ. Child. Dis.*, January–March, 1931, p. 22) reports two fatal cases of measles encephalitis. The first, which occurred in a previously healthy girl, aged 8, with no history of fits or convulsions, was unusual, in that the symptoms of encephalitis appeared on the third day of measles, within twenty-four hours of the eruption, and after an apparently normal onset of the disease. Death ensued within twenty-four hours of the first sign of cerebral involvement. The second patient was a boy, aged 5, who had had no previous illnesses. On the eighth day of an ordinary attack of measles, when he was already convalescent, he developed symptoms of cerebral

involvement, and death followed in twenty-five hours. Both patients showed symptoms of severe and widespread cerebral damage, and the prognosis was hopeless from the first. Post-mortem examination in both instances revealed acute congestion of the brain on naked-eye examination, and the typical histological appearances of post-infective encephalitis.

590 Streptococcal Myositis

F. E. BICHARA (*Thèse de Paris*, 1931, No. 10), who records 19 illustrative cases in patients aged from 9 to 68, 13 of which were fatal, states that the most typical form of streptococcal myositis is characterized by a sudden onset, a very grave general condition from the first, and a rapidly fatal course. The only clinical manifestation of the septicaemia is myositis involving one or more muscles, and manifested by a considerable but variable swelling. The muscle is infiltrated with serous fluid swarming with streptococci, and the histological lesions are those of degenerative myositis. In addition to the hyperacute form of streptococcal myositis, there is a variety found in the course of well-defined streptococcal infections such as erysipelas, puerperal fever, ulcerative endocarditis, and Osler's disease. Abortive and curable forms may occur in which the infection of the muscle is due to a special form of streptococcus.

591 The Lungs after Measles

J. L. KOHN and H. KOIRANSKY (*Amer. Journ. Dis. Child.*, March, 1931, p. 501) had previously found that skiagrams of the chest taken during measles in 130 children showed shadows suggesting pulmonary infiltration in 62.4 per cent. of those under 4 years old and in 42.2 per cent. above that age. They now report their observations on re-examination of these children from six to ten months after measles. The results were as follows. Little or no residual changes were found at the site of previous pulmonary infiltrations, even when they had been extensive and of long duration. On the other hand, the evidence of pleural involvement during measles was striking. In 18 children, most of whom had been in good health on discharge from hospital, pleural thickening not present during measles was now seen at the site of the interlobar fissure between the upper and middle lobes of the right lung, or in some other portion of the pleura. The pleurisy often occurred in cases regarded clinically as mild.

Surgery

592 Ankylosis of the Temporo-maxillary Joint

M. COELST (*Rev. de Chir. Plast.*, April, 1931, p. 63) describes a case of temporo-maxillary ankylosis on the right side which occurred in a young woman, aged 22. Various methods of treatment which had been tried for three years had failed, and at the time of the surgical intervention it was impossible for the patient to separate the molar teeth even to a slight degree; this made the taking of sufficient nourishment extremely difficult. On the right side, a little in front of the temporo-maxillary articulation, there were numerous scars of fistulae resulting from the arthritis which was the original cause of the lesion. The operation was conducted under general anaesthesia; a V-shaped incision was made, the point of which reached up to the level of the ear, care being taken to avoid the facial nerve. The outer surface of the joint was exposed and freed. A gouge was then used for hollowing out a thin section of bone at the site of the original articular surface. A true resection of bone was not performed, but the articular surfaces were shaped by means of a file. At the end of the operation the patient could open and close the jaws like a normal subject. An apparatus was fitted a few days later to enable the movements of the jaws to be carried out passively daily, and to prevent any risk of a return of the ankylosis. Three months later the scar was practically invisible; the general condition of the patient was much improved, and the mouth could be opened normally.

593 Lingual Tuberculosis

According to CH. DU BOIS (*Rev. Méd. de la Suisse Romande*, April 25th, 1931, p. 257) the symptomatology of the chief forms of tuberculosis of the tongue corresponds almost exactly to that of the different cutaneous types. Lingual lupus and tuberculous gummata are rare; both evolve very slowly, and are generally found on the dorsum. The former is usually associated with lupus in other parts of the mouth, and rarely ulcerates. The late ulceration of tuberculous gummata distinguishes them from the syphilitic forms, though serological tests are often necessary for diagnosis. Spontaneous primary and secondary ulcerations are the commonest of the lingual types; exceptional in infancy and old age, they occur more frequently in men than in women. Primary ulcerations are of two varieties, one being caused by accidental infection in a subject free from tuberculosis, and the other being due to auto-infection in a tuberculous patient. Secondary ulcerations arise without any previous traumatism or gummatous formation. Both types usually occur on the tip or edges of the tongue. At their onset these ulcerations cannot be distinguished from simple erosions, their general starting-point, but any failure to heal after removal of the cause of injury, such as a jagged tooth, is rather indicative of tuberculosis. Lingual tuberculosis must be differentiated from syphilis and cancer; a case is recorded which illustrates the difficulty of diagnosis. The treatment employed by Du Bois is the application of caustics and *x* rays. Excision of small areas, as in cutaneous tuberculosis, may prove efficacious. Prophylactic measures consist chiefly in maintaining the integrity of the organ.

594 Fatal Thyroid Crisis following Injection of a Varicose Vein

E. I. GREENE and J. M. GREENE (*Journ. Amer. Med. Assoc.*, February 21st, 1931, p. 611) report the case of a man, aged 40, who had had the typical signs of Graves's disease for eight months. In the region of the left ankle there was a small ulcer, with a number of small veins at its upper margin. On account of pain in the ulcer he asked to have the veins injected. This was refused, but he was advised to enter hospital for treatment for his thyrotoxicosis, and, incidentally, for his ulcer. He persuaded another physician to perform the injection, but within a few hours severe pain developed at its site, and later there ensued restlessness, profuse sweating, vomiting, and diarrhoea. Two days later he was delirious, with marked exophthalmos and hyperpyrexia, and there was extravasation of the injected material at the upper border of the ulcer. In spite of treatment with the compound solution of iodine through a stomach tube, sodium iodide, intravenous injections of 1 per cent. dextrose in normal saline solution, and morphine in 1/4 grain doses, the patient died. The authors comment on the vital necessity of refraining from all operative procedures in such cases until the thyroidism has been brought under control.

595 Carcinoid Tumours of the Small Intestine

H. H. COOKE (*Arch. of Surg.*, April, 1931, p. 568) records eleven cases of carcinoid tumours of the small intestine, and, as metastasis was present in three cases, the series is divided into a malignant and a benign group. Carcinoid tumours of the small intestine usually appear as small circumscribed firm nodules, which project into the lumen and are often multiple. Their size varies from 3 mm. to 1 cm. or more in diameter, the larger nodules being yellow to greyish-white in colour. Their free surfaces are usually covered by normal mucosa, but there may be superficial erosions or ulcerations. The primary nodules have the consistency of a hard fibroma. Carcinoid tumours may occur anywhere in the gastro-intestinal tract, but are most common in the appendix and small intestines. Their origin has been assigned to the principal epithelial cells of the crypts of Lieberkühn, to Paneth's cells, and to the basal granular cells. In the eleven cases under review intestinal obstruction was caused in three of the malignant and in one of the benign cases. Five of

the patients were in the seventh decade of life. The primary lesion was a single circumscribed nodule in seven cases, multiple nodules in three cases, and an annular constriction in one case; it was situated in the jejunum in two cases, and in the ileum in 9 cases, the size of the lesion varying from 0.2 cm. to 2 cm. in diameter. The only treatment for carcinoid tumours is surgical removal, the prognosis being favourable in the absence of metastasis.

596 Spina Bifida Treated by Operation

C. LASSERRE and P. LÉONARD (*Bordeaux Chir.*, April, 1931, p. 169) report a case of spina bifida which was treated surgically ten hours after the birth of the infant. The father was under treatment for syphilis; when it was recognized that the mother was pregnant she received injections of bismuth and also of acetylarsan. After a normal but slightly premature confinement a male child was born which showed signs of a prominent forehead and had a reddened zone in the lumbar region. This increased in size as the child moved and cried, until it was as large as a small orange, and revealed through a thin covering of skin that it was filled with a clear liquid. There were no signs of hydrocephalus or club-foot, and no contra-indications to operation. This was immediately performed, and consisted in opening the sac, evacuating the fluid, and reducing the nerve elements. The sac was dissected out and sutured over the nerves, and the skin and underlying tissues were sutured over the opening in four layers. During the operation the child was laid prone on his abdomen. There were no post-operative complications, but antisyphilitic treatment was given. On the eighth day signs of hydrocephalus were evident, but were not progressive.

Therapeutics

597 Trichlorethylene in Trigeminal Neuralgia

It was noted during the war that workers with trichlorethylene developed symptoms of acute poisoning—namely, bilateral loss of sensation definitely confined to the trigeminal distribution of the face. Plessner and Oppenheim were therefore led to try the efficacy of the drug in trigeminal neuralgia, using the inhalation method. M. A. GLASER (*Journ. Amer. Med. Assoc.*, March 21st, 1931, p. 916) now records the results obtained in 15 cases; 13.3 per cent. were partially relieved, contrasting with Seelert's claim that 74 per cent. of his patients improved. Though later reports do not fulfil the earlier expectations for this treatment, Glaser considers that trichlorethylene, which is non-toxic, is an extremely valuable adjunct in the treatment of trigeminal neuralgia, and should be tried in all cases before resorting to alcohol injections or surgery. It is ideal when effective, since the pain is relieved without anaesthesia resulting. Its action is unknown. The drug should be inhaled three or four times daily; twenty to twenty-five drops are placed on a piece of gauze, and the inhalation is continued till the odour has entirely disappeared. This procedure should be continued for four to six weeks, but after the pain has been relieved daily inhalations are unnecessary. As a prophylactic, the drug may be inhaled every two or three months for three consecutive days. As trichlorethylene occasionally produces vertigo, sleep, and drowsiness, it should be inhaled in a recumbent posture. It also occasionally causes tingling in the extremities, but this passes off rapidly.

598 Treatment of Malaria

H. WILLOUGHBY and E. ASLETT (*Journ. Royal Naval Med. Service*, April, 1931, p. 95) insist that the optimum maximum oral dosage of quinine in quartan infections is 10 grains three times daily, and the same quantity twice a day in subtertian cases; any excess is liable to induce toxic symptoms, especially in debilitated patients. The maximum effect on the parasites is obtained with these smaller doses, and the patient gains nothing by increasing them. Plasmoquine administration should be associated with glucose, thus decreasing the tendency to toxic symptoms, and for the first two courses the patient should remain in bed. The appearance of cyanosis should be taken as an indication to decrease the dose, but it should be remembered that patients who develop this sign are nearly always completely cured eventually. The plasmoquine compound with quinine is not recommended in cardiac disease, but it has a special value in cases resistant to quinine alone, when blackwater fever is indicated or present, in pregnant or puerperal women, and in children. The authors doubt whether salvarsan has any specific action on the malaria parasite. At the start of blackwater fever the threatened haemoglobinuria may be averted by rapid alkalinization of the urine, gradual desensitization with the plasmoquine compound, and the treatment of constipation by calomel in one or two doses, and not by the repeated subminimal dosing which causes acute colic. The authors favour the intravenous administration of 150 grains of sodium bicarbonate in one pint of 5 per cent. glucose solution, when acidosis has to be prevented or the blood pressure raised. They doubt whether there is any risk of the formation of carbonates in the blood stream by this method, but give details of the special precautions which should be observed. Caffeine citrate has a useful diuretic effect when suppression of urine is threatened. Blood transfusion is not advisable during the haemoglobinuric process, but is of value subsequently.

599 Intraspinal Magnesium Sulphate for Intolerable Pain

A. GORDON (*Med. Journ. and Record*, April 15th, 1931, p. 399) advocates intraspinal injections of magnesium sulphate for the relief of intolerable pain, and records satisfactory results in twelve cases (four of tabes, seven of radiculitis, and one of fibroblastoma of the cord). Based upon sound physiological deductions and experimentation, it is claimed that in certain cases of root pain, due to organic involvement of the central nervous system, relief can be obtained and existence rendered tolerable thereby. Success depends largely upon wise discrimination as to dosage, frequency, and length of intervals in treatment. The minimum adult dose is 2 c.cm. of a 25 per cent. solution of magnesium sulphate, but in long-standing cases, when the patients are exhausted by pain and want of sleep, 4 c.cm. may be given. The spinal puncture should be below the second lumbar vertebra, preferably between the third and fourth or the fourth and fifth vertebrae. Immediately following the withdrawal of 5 c.cm. of spinal fluid, the solution should be introduced while the needle is in position; the patient is kept quiet in bed for several hours in a lateral position. Even in cases where a dry tap results, owing to blocking of the subarachnoid space, the injection should still be made. In one of the author's cases considerable relief was obtained though several dry punctures were made. In all the cases prior to the trial of the intraspinal method sedatives had failed to give any relief. One tabetic patient was completely relieved of severe lumbar pain and girdle sensation after three 2 c.cm. injections at weekly intervals, and the pain in the legs became better. There was also noticeable improvement in gait, ataxia, and bladder control.

600 The Administration of Salicylates

G. H. W. LUCAS and V. E. HENDERSON (*Canadian Med. Assoc. Journ.*, April, 1931, p. 541) suggest a way of giving large and repeated doses of the salicylates without causing gastric irritation. The acidity which is induced by these salts has been attributed to the liberation in the stomach of salicylic acid, and attempts have been made to neutralize it by administering simultaneously sodium bicarbonate. Since a mixture of sodium bicarbonate and salicylate has an unpleasant taste, it has usually been prescribed in capsule form, or in powder rapidly washed down by a little water; the salts are liberated from the capsule in the stomach in a concentrated form, and the tendency to gastric irritation is thus accentuated. The authors therefore prefer to employ calcium carbonate or magnesia with salicylates in solution; the consequent colour changes in the fluid are prevented by small doses

of sodium thiosulphate. The mixture is made more palatable by the addition of the compound syrup of sarsaparilla (*United States Pharmacopoeia*), or of syrup and aqua menthae piperitae.

601 Bismuth Arsphenamine in Early Syphilis

J. H. STOKES, T. H. MILLER, and H. BEERMAN (*Arch. Derm. and Syph.*, April, 1931, p. 624) report their conclusions derived from several years of exhibiting in various forms of syphilis an arsphenamine synthetic of bismuth known as bismarsen. This preparation has an arsenical content of 12 to 15 per cent., and 23 to 25 per cent. of bismuth. It is injected intramuscularly in doses of 0.1 to 0.2 gram in adult patients at intervals of once in two to once in seven days; the drug is dissolved in water containing butyn, which acts as a local anaesthetic. Courses range from eight injections in a series to as many as forty; toxicity is low, but the individual degrees of reactivity vary. In 2 per cent. of the authors' cases there was local stiffness with slight pain, yielding to massage and hot applications. In 11 per cent. of patients there were mild systemic reactions in the form of nitritoid crises, gastro-intestinal disturbances, and cutaneous symptoms. Three cases of jaundice have been reported so far, but there have been no cerebral manifestations. In early syphilis two injections a week are advised; the effect on the Wassermann reaction is excellent and lasting, and the proportion of relapse was 12 per cent., as compared with 20 to 40 per cent. in a carefully studied series of cases treated otherwise. The authors obtained evidence that intermittent administration was less effective than continuous treatment; marked tonic effects were usual. Fair results followed the use of bismarsen in cardio-vascular syphilis, and there appeared to be no need to associate it with iodides and mercury. Little or no alteration occurred in the paretic formula of the cerebro-spinal fluid, and it was concluded that the most favourable field for bismarsen was that of early syphilis.

Anaesthetics

602 Fatal Colitis Caused by Avertin

I. WYMER (*Schmerz Narkose-Anaesthesie*, April, 1931, p. 19) records the case of a man who was anaesthetized with avertin introduced into the rectum for the removal of a vesical calculus; 0.16 gram of avertin for each kilo of body weight was given in a 2 per cent. solution. The patient was restless during the operation, and ether had to be administered. After the operation the rectum was washed out with saline solution, but the patient never recovered consciousness, and died in forty-eight hours. At the post-mortem examination a severe necrosing phlegmonous inflammation of the ascending colon was found. Discussing the case, the author states that mucus and blood in the stools, indicating the presence of colitis, is not uncommon after avertin. There was no question in this case of chemical changes having taken place through overheating, but it is possible that the avertin was injected too far; having reached the ascending colon its action was prolonged owing to its being uninfluenced by the saline lavage. The dose was also larger than that used in most clinics. To indicate further the toxic effects of avertin, Wymer also produced necrosis of the skin and subcutaneous tissues in animals by hypodermic injection.

603 Neocaine as a Spinal Anaesthetic

E. E. ARNHEIM and S. MAGE (*Annals of Surgery*, April, 1931, p. 929) record a series of 497 cases in which spinal anaesthesia was employed, usually a single dose of 120 mg. of neocaine in crystalline form dissolved in the spinal fluid, and comment on the importance of selecting suitable cases—namely, those in which a general anaesthetic is contraindicated, or those in which the operative procedure, usually abdominal, is of some magnitude. In most cases the surgeon acted as anaesthetist; the lumbar puncture was performed with the patient sitting up, or in the lateral position, this being altered immediately afterwards to a slight Trendelenburg posture. Morphine and atropine were administered before the injection in 345 cases, codeine and atropine in 13, and ephedrine in 145. The usual dose of ephedrine was 50 mg. In 8 cases (1.6 per cent.) no anaesthesia ensued, and in 163 (32.8 per cent.) general anaesthesia had to be induced. The authors remark that they have found that the need for such supplementary anaesthesia is reduced by using larger doses of the neocaine. The occurrence of shock on the operating table was usually confined to patients of advanced age and with arterio-sclerosis and myocardial disease, or to cases of cachexia or of intoxication resulting from some debilitating disease. Patients with hypertension may develop suppression of urine as a result of untreated fall in the blood pressure. There was a relatively high incidence of post-operative pneumonia (21 cases, or 4.2 per cent.). There was one toxic anaesthetic death, the other two deaths being due to errors in technique which are considered to be avoidable.

604 Ether Hyperglycaemia

Hyperglycaemia during and following ether anaesthesia is a striking manifestation of the effect of that drug on carbohydrate metabolism. A. CANTAROW and A. M. GEHRET (*Journ. Amer. Med. Assoc.*, March 21st, 1931, p. 939) discuss this condition with especial reference to hepatic disease, and record a series of observations made at intervals during operations under ether on 8 patients with biliary tract disease and 4 with other conditions. Two theories have been advanced to explain this hyperglycaemia. One, not generally accepted, is that it is due to depression of the pancreatic internal secretory function (hypo-insulinism); the other, which the present authors approve, ascribe it to increased hepatic glycogenolysis, due either to the direct action of the anaesthetic or to the increased hydrogen-ion concentration associated with ether anaesthesia. Before their operations all the present patients received a diet high in carbohydrates with supplementary dextrose therapy. The average rise in blood sugar for each ounce of ether administered was 2.9 mg. per 100 c.cm. in patients with frank icterus, as compared with 7.6 mg. in those with biliary tract disease without jaundice. All the patients made good recoveries with the exception of one who, receiving 14 ounces of ether, failed to show any appreciable rise in the blood sugar content, and died 18 hours after the operation. The necropsy revealed extensive acute necrosis of the liver, which was not present at the operation. Pre-operative liver function tests had not differed from those in the other jaundiced patients. The authors conclude that all patients with biliary tract disease should be regarded as having hepatic damage, whether or not hepatic insufficiency is demonstrable.

Obstetrics and Gynaecology

605 Treatment of Placenta Praevia

P. A. MCLEOD (*Canadian Med. Assoc. Journ.*, April, 1931, p. 508) emphasizes the importance of losing no chance of prophylactic treatment when the existence of placenta praevia is suspected. Should slight bleeding occur during the last few months of pregnancy, unaccompanied by pain, it is unwise to make a digital examination to confirm the probable diagnosis until preparations have been completed for dealing effectively with the consequent intensification of the haemorrhage, since it is easy to dislodge a blood clot or open up a new sinus. Such an examination should be conducted, therefore, in a fully equipped delivery room, with bags and sterile solution ready; if possible, blood transfusion facilities should be available. Shock should be anticipated, by transfusion if serious bleeding has occurred, even though there are as yet no serious symptoms. As an emergency measure, the intravenous injection of a 6 per cent. solution of gum acacia and 20 per cent. glucose will sustain the blood pressure longer, and the fluid will be absorbed more slowly, than

if the gum is omitted. From 400 to 1,000 c.cm. of this solution at a temperature of 105° is administered at a rate of 4 to 6 c.cm. a minute. In the management of the more severe marginal type of placenta praevia, and of the less severe partial form, McLeod prefers to introduce the Voorhees bag; this, being cone-shaped and filled with fluid, forms a true hydrostatic wedge, fits the cervix, accomplishes a fairly rapid dilatation, and acts simultaneously as a tampon to control the bleeding. He finds that its insertion in the cervix beneath the placenta is usually quite satisfactory, but the fluid should be injected slowly so as not to stretch the lower uterine segment too rapidly. The subsequent delivery should be brought about by version and extraction, it being remembered that slow extraction will complete the dilatation of the cervix, and will leave it so open as not to obstruct the after-coming head. Hasty extraction may tear a soft and friable cervix to which the placenta has been attached, and the resulting haemorrhage from ruptured sinuses may be serious. Details are given of the treatment recommended at the different stages, and the author discusses the indications for Caesarean section.

606 Carcinoma of the Vagina

E. LÖVEGREN (*Acta Paediatrica*, March 15th, 1931, p. 371) records a case of primary carcinoma of the vagina which proved fatal at the age of 1 year and 10 months, six months after the onset. The symptoms were blood in the urine, haemorrhage apart from micturition, debility, and anaemia. Curetting and radium treatment caused a temporary improvement in the general condition. During the last two months, however, a rapid loss of nutrition set in, and metastases appeared in the lower part of the abdomen. There was no necropsy, but histological examination of scrapings of the tumours showed that it was a papillary epithelioma. Lövegren has found only one other case of carcinoma of the vagina in an infant, which was described by Aschheim in a child, aged 6 months, who had an adenocarcinoma on the anterior vaginal wall, with the ovaries converted into cystic tumours. In contrast with carcinoma, sarcoma of the vagina is not so rare in children, since there are about two dozen cases on record.

607 I. DE BÜBEN (*Surg., Gynecol. and Obstet.*, April, 1931, p. 884) states that vaginal carcinoma is the most malignant, the most difficult to cure, and the most dangerous variety of cancers of the female genitalia. The patients are usually past the climacteric, and little is known as to the etiology. The growth is situated as a rule in the upper third of the posterior vaginal wall, the place most exposed to trauma. Histologically the neoplasm presents the appearance of a squamous-celled cancer or, exceptionally, of an adenocarcinoma. The results obtained by operation or radiotherapy (irradiation of the growth locally with radium and of the infiltrated lymphatic glands with *x* rays) are far from satisfactory. Radiotherapy has a wider range of applicability than surgery, and in most cases has only a temporary palliative effect. The Wertheim method, or total extirpation, combined with resection of the rectum in cases with the growth in the posterior vaginal wall, is considered to result in recovery more often than other procedures.

608 Uterine Hypertony in Successive Labours

P. BALARD (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, March, 1931, p. 181) reports two cases, in each of which extreme uterine contraction occurred in two successive labours. Uterine hypertony, except in primiparae, is relatively rare, and such a repetition as is recorded by Balard is most exceptional. Both patients were 2-paras. In the first, both labours were associated with premature rupture of the membranes, the breech presenting on the first occasion, and the head on the second. In the second case, the first labour only was associated with premature rupture of the membranes, and both presentations were of the usual cephalic type. In both cases there was no hydramnios, and the pelvis was normal. Amniotic infection was present in both patients; in the first one, this occurred before the contraction in both labours; in the second patient, the contraction developed well before the infection in the first labour, and in the second the embryo was intact and pyrexia was absent. Besides the factors usually considered as the causes of uterine hypertony, Balard suggests that this condition may be due to a peculiar irritability of the uterine fibres. Low Caesarean section is recommended in such cases provided that the clinical signs show that the infant will not suffer thereby; it was performed in both of Balard's cases.

609 Cancer of the Cervix after Subtotal Hysterectomy

According to R. MONOD (*La Gynécol.*, February, 1931, p. 106) 138 cases of cancer in the cervical remnant after subtotal hysterectomy were treated in anticancer clinics in Paris during the past ten years; the condition is less rare than has been reported. Some of the intracervical cancers which are detected within a few months or years after hysterectomy were present before the operation; some of the growths, usually of squamous-cell type, found many years after operation, may be regarded as provoked by it. Cancer of the cervical stump occurs most frequently after an operation for fibroma, and Polak among nine hundred fibromata found in 2 per cent. a cervical cancer which a subtotal operation would have permitted to evolve. Monod advises that the subtotal kind should be abandoned in favour of total hysterectomy. After the former operation has been performed in exceptional cases, it is advisable to open and examine the operation specimen before the abdomen is closed, and to examine the patient periodically after her apparent cure. Surgical treatment of cervical carcinoma is unusually difficult after hysterectomy; as a rule radium therapy is preferable, but the prognosis is bad.

610 Foetal Ascites

N. GUPTA and P. CHANDRA DAS (*Indian Med. Gazette*, April, 1931, p. 186) record two cases of foetal ascites in view of the rarity and clinical importance of this condition. They remark that it is found most commonly in the form of a general foetal dropsy, associated with hydrothorax, and sometimes with maternal dropsy. Nearly all the cases are premature, mostly between seven and eight months, and dystocia from this cause is infrequent; when it does occur the true nature of the obstacle is likely to be overlooked. Dystocia was absent in both cases recorded by the present authors. The labour is generally premature and the presentation vertex; uterine pains are usually weak from over-distension of the maternal abdomen. Though difficulty is encountered in the delivery of the child, owing to its abdominal distension, yet the foetuses are often born spontaneously owing to their prematurity and compressibility. Rupture of the uterus is extremely rare. In the two cases recorded there were no malformations of the urinary apparatus, congenital syphilis, or portal obstruction. There was some evidence of an inflammatory process of the peritoneum in both cases, but its cause was obscure.

Pathology

611 Experimental Transmission of the Common Cold

P. H. LONG, J. A. DOULL, JANET M. BOURN, and EMILY MCCOMB (*Journ. Exper. Med.*, April, 1931, p. 447) have succeeded in transmitting the common cold to human volunteers by nasal instillation of bacteria-free filtrates of nasopharyngeal washings obtained from persons suffering from natural infection. The experiments, which were made on healthy young women, were carried out during the months of June and July, when there was a low incidence of respiratory infection among the normal population. The volunteers were kept in strict quarantine, and were observed for from two to six days before inoculation. During this time they received nasal instillations of filtered yeast infusion broth in order to prevent them from knowing the time of inoculation. The actual inoculations with infective material were made by instilling 0.5 to 1 c.cm. of a Seitz or Berkefeld W filtrate into each nostril,

the subject being in the supine position with the head tipped back; the mucous membranes of the anterior nares and the posterior pharyngeal wall were then lightly rubbed with swabs soaked in the filtrate. Each subject received from one to three inoculations within a period of twenty-four hours. The filtrates were found to be free not only from the ordinary bacteria, but also from the tiny Gram-negative anaerobic organisms which can pass through a Berkefeld V candle. Altogether 20 inoculations were made from nine subjects with natural colds into nineteen volunteers; eleven of these inoculations were successful in setting up colds. Serial passages through two and four volunteers were successfully accomplished. The incubation period was 20 to 70 hours; no cold developed after three days. The authors conclude that the common cold is due to infection with a filterable virus.

612 Sugar Tolerance in Infants

T. G. H. DRAKE and C. E. SNELLING (*Canadian Med. Assoc. Journ.*, April, 1931, p. 511) from their investigations upon sugar tolerance curves in acute intestinal intoxications in infants confirm the findings of Tisdall, Drake, and Brown, who showed that in such cases the ability to utilize glucose injected into the blood stream is lessened, since it disappeared less rapidly than in the case of normal infants, the rate of removal being inversely proportional to the degree of toxaemia. The present report shows an absolute correlation between the intensity of the intoxication and the increase in height and width of the sugar tolerance curve. In the investigation 10 c.cm. per pound of body weight of a 10 per cent. glucose solution was injected into the superior longitudinal sinus; blood sugar determinations by Folin's method were made before the injection, and half an hour, one hour, two hours, and three hours afterwards. This was repeated every second or third day. In normal infants the average blood sugar is 0.09 mg. per 100 c.cm.; half an hour after an injection of this amount of glucose solution it rises to 0.285 mg. per 100 c.cm., returning to the 0.09 mg. level one hour later. In cases of acute intestinal intoxication the blood sugar rose to 0.375 mg. in half an hour, and did not return to the 0.09 mg. level until three hours had elapsed.

613 Jaundice and Iron Metabolism

T. BRÜGSCH (*Med. Klin.*, April 10th, 1931, p. 536) has shown that after the daily oral administration of large doses of reduced iron, the iron content of the urine is not significantly increased. Applying the test to a series of cases of jaundice, he demonstrated that in icterus due to hepatic toxaemia, in mechanical jaundice, and in biliary cirrhosis the iron content of the urine is never significantly raised above the limit of health. In hepatic disease accompanied by jaundice the formation of bilirubin and iron from the colouring matter of the blood occurs in the liver; the bilirubin passes out into the tissue fluids and causes the icteric colouring, the iron remaining for the most part in the liver. The deposit of iron in the liver in jaundice does not lead to its increased excretion in the urine or in the bile. Whether the iron in the liver is, during convalescence, gradually excreted by the bowel, or is retained in the body to be used in the reconstruction of haemoglobin, is not known. Although the liver is the chief originating source of jaundice, it is also probable that it may arise in the skin. It is pointed out that the blue reaction evoked by the intradermal injection of potassium ferricyanide is not a certain indication of severe liver disease with jaundice, since the effect may be produced by the oxidation of excess of bilirubin in the skin.

614 Quantitative Estimation of Living and Dead Tubercle Bacilli in Sputum

E. BUTSCHOWITZ (*Zeit. f. Tuberkulose*, April, 1931, p. 149) describes a method for ascertaining the number of viable and dead tubercle bacilli in sputum. The sputum is collected, 1 to 2 grams are weighed out, 4 per cent. solution of sodium hydrate is added, and the mixture is worked up with a glass rod till it is rendered homogeneous. Using phenolphthalein as an indicator, the alkali is neutralized with normal hydrochloric acid; the resulting neutral digested sputum serves as the material from which dilutions for counting are made. The total number of tubercle bacilli is determined by mixing the suspension with yeast cells, making and staining a film, and determining the number of bacilli and yeast cells in 25 to 50 fields. The yeast suspension is counted in an ordinary Thoma-Zeiss chamber. Knowing the relation of bacilli to yeast cells, and knowing the number of yeast cells per c.cm., it is easy to calculate the total number of bacilli per cubic centimetre of homogenized sputum. The count of living tubercle bacilli is made by streaking a normal loopful of the original suspension and of varying dilutions on to tubes of Lubenau's egg medium, incubating for three to four weeks, and counting the number of colonies which have developed. As an illustration of this method, the author quotes an instance in which there were 37 million tubercle bacilli per c.cm., of which 29 per cent. were alive and 71 per cent. dead.

615 Gall-bladder Disease and Carbohydrate Metabolism

The relatively frequent occurrence of gall-bladder disease in diabetic patients suggests that diabetes may often be a secondary condition, the primary disturbance being in the gall-bladder. Investigation of a series of cases of cholelithiasis and cholecystitis has convinced H. STRAUSS (*Deut. med. Woch.*, March 27th, 1931, p. 530), however, that both hyperglycaemia and alimentary glycosuria are of relatively rare occurrence in these diseases, and that while disturbances of the external secretion of the pancreas are fairly common, there is probably no direct relation between cholecystitis and disorders of carbohydrate metabolism. The frequency with which diabetes is found to have followed infective disease of one kind or another indicates rather that cholecystitis predisposes to diabetes merely by virtue of its infective nature.

616 Apparent Specificity among Streptococci

J. C. WALKER (*Journ. Lab. and Clin. Med.*, March, 1931, p. 539) states that there is a variation from year to year among the varieties of streptococci present in the sputum of asthmatic patients, of patients with uncomplicated chest colds, and of those with chest colds complicated by asthma; there is, moreover, variability in the prevalence of the same streptococcus in the same year in the case of the three conditions named. A mixed vaccine comprising the more prevalent varieties of streptococci for a given period has considerable value, both as a preventive and as a curative in chest colds and asthma. Failure of this vaccine in some cases was due to the presence of an insufficient quantity of the particular causative streptococcus, and relief followed the administration of an autogenous vaccine in which larger amounts of the causative microbe were present than in the mixed. In other cases failure of the mixed vaccine was due to the fact that the illness was caused by one or more of the less prevalent strains of streptococci being absent from the vaccine. The results of treatment in 89 patients, here presented, contraindicate any non-specific effect of vaccines, and support their specificity. In many cases vaccine treatment was undoubtedly specific, and showed a specificity among the common streptococci.

617 The Basal Metabolism in Pulmonary Tuberculosis

S. P. VELOSO (*La Med. Ibera*, March 28th, 1931, p. 461), who records 24 cases in patients aged from 19 to 62, illustrating the behaviour of the basal metabolism in pulmonary tuberculosis, comes to the following conclusions. (1) The basal metabolic rate varies even on the same day and in the same subject. (2) The basal metabolic rate is closely related to the severity of the infective process; a careful study of the rate will throw light on the course of the disease. (3) A rise in the basal metabolism may be due to activity of the tuberculous process. (4) A gradual or sudden rise is an unfavourable prognostic, while a fall is a favourable sign. (5) Examination of the basal metabolism is therefore a valuable guide to prognosis and treatment in pulmonary tuberculosis.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

618 Generalized Myositis Fibrosa

J. A. G. BURTON, J. COWAN, and J. FLEMING (*Quart. Journ. Med.*, April, 1931, p. 369) describe the present condition of a case of generalized myositis fibrosa first seen in 1920 and reported in 1923. A previously healthy woman noticed stiffness of the legs during her fifth pregnancy in the spring of 1920. After miscarrying in May the stiffness increased until a month later her arms were becoming stiff, and she could not walk any distance; when admitted to hospital in September of that year she was helpless. Joint movements were quite free within certain limits, but they suddenly stopped at definite angles owing to the shortness and tightness of the muscles. The finger movements were ample but weak. The patient could not dorsiflex her ankles to a right angle, and flexion at the knee and hips was very limited; an excised portion of the gastrocnemius showed myositis. She gradually improved until February, 1923, when she was able to do all her housework except kneeling to scrub floors. Ten years after the onset (September, 1930) she was well nourished, in good health, and walking well. There is still some limitation to extension of the elbows, right wrist, and ankles. She has full flexion of the fingers, but extension of the proximal interphalangeal joints is limited. Flexion of the hips is less free than formerly and the movements of the toes are limited. She climbs up her legs like a child with pseudohypertrophic paralysis, but does not appear to be inconvenienced by the weakness in the extensors. The various reflexes are normal and the organs healthy. The movements are less free in cold weather. While her difficulties are very slowly increasing, she overcomes them sufficiently to perform her duties successfully.

619 Undulant Fever in New South Wales

According to A. H. TEBBUTT and H. T. MARSH (*Med. Journ. Australia*, February 7th, 1931, p. 170) the first case of undulant fever reported in Australia was of foreign origin, and was recorded by Dixon in 1908. The patient was a Maltese who had been drinking goat's milk in Malta and became ill twenty-seven days after leaving that island, subsequently being treated in Sydney Hospital. *Br. melitensis* was agglutinated in a dilution of 1 in 60 first, and then of 1 in 200; during a relapse this organism was recovered from his blood. The first indigenous cases in Australia were reported by Penfold and Butler in 1930. In one of their two patients the diagnosis was made by both blood culture and the agglutination test, and in the other by agglutination alone. The present authors now record a case—the first indigenous case to be reported in New South Wales—in a dairy farmer, aged 51, who had been handling aborting cattle. The diagnosis was made by the agglutination test (1 in 640 of *Br. abortus*).

620 Meningo-encephalitis following Measles

L. MORQUIO (*Arch. de méd. des enf.*, May, 1931, p. 269) records eight illustrative cases in children aged from 2 to 13 years, who developed the following nervous sequels of measles: acute diffuse myelitis, acute generalized encephalitis (3 cases), circumscribed encephalitis with hemiplegia, bulbo-pontine encephalitis, a meningeal form simulating tuberculous meningitis, and a meningeal radicular and polyneuritic syndrome. With the exception of one case of acute generalized encephalitis all recovered, and of the remainder all but two, in whom motor and psychical sequels persisted, made a complete and permanent recovery. The occurrence of acute encephalitis following measles, with or without other nervous sequels, may be regarded as a mere coincidence, or as due to a specific neurotropic virus of measles.

621 Gonococcal Chancre

A. SCIALOM (*Thèse de Paris*, 1931, No. 22), who records seventeen illustrative cases, states that in addition to secondary cutaneous lesions due to the gonococcus, and resulting from the dissemination of the organism which is primarily localized in the urethra, actual gonococcal chancres may occur at points of inoculation. Three varieties of gonococcal chancre are described, namely: (1) pseudo-syphilitic chancre assuming the form of oval or circular erosions, which may be superficial or more or less deep, and with an indurated base; (2) a form simulating soft chancre; and (3) a mixed form having the characters of the two preceding types. In the absence of any urethral discharge the diagnosis of these chancres is very difficult, and the best method of avoiding an error is to look for the gonococcus as well as the *Treponema pallidum* and Ducrey's bacillus in all doubtful cases.

622 An Auscultatory Sign of Defective Conduction in Mitral Stenosis

R. LUTEMBACHER (*Arch. des Mal. du Cœur*, March, 1931, p. 190) holds that auricular systole is indirectly audible on auscultation in only two conditions: gallop rhythm and mitral stenosis. In the first of these, auricular systole sets up vibrations in a ventricular wall that has lost its elasticity, with the result that a presystolic sound is heard. If the auricle becomes enfeebled, or if fibrillation supervenes, this sound is no longer audible. In mitral stenosis the sounds ordinarily heard, as described by Duroziez, are a diastolic rumble with presystolic reinforcement, a sharp first sound, and a reduplicated second sound. The presystolic reinforcement is caused by auricular systole, and disappears when auricular fibrillation sets in. When a defect of conduction occurs in association with mitral stenosis a modification of the usual sounds is heard. This is due to the longer interval between the auricular and ventricular systoles, and is represented by a displacement into earlier diastole of the presystolic reinforcement. Frequently, this modified sequence of sounds is interrupted by a pause representing complete failure of conduction—a dropped beat. The author illustrates these manifestations by reference to two patients who were suffering from recrudescences of acute rheumatism, and recalls that it is well known that the bundle of His is apt to be implicated in rheumatic carditis. In both of these patients a defect of conduction diagnosed on auscultation was confirmed by electrocardiography; correspondingly, when the electrocardiogram had returned to normal, the modification of the rhythm of Duroziez was no longer observable on auscultation.

623 Acute Poliomyelitis

Commenting on a recent epidemic of acute poliomyelitis in south-western Minnesota, E. T. EVANS (*Minnesota Med.*, May, 1931, p. 396) discusses the most effective means of preventing loss of life and function. The highly contagious nature of the infection, which he agrees is probably due to a filterable virus, has been demonstrated in all epidemics. A certain low proportion of cases produced evidence of a subsequent central nervous system invasion. This invasion depended both on the virulence and on the lowered meningeal resistance. Pathological investigations revealed a round-cell infiltration deep in the nerve tissue, apparently blood-borne, with resultant death of the nerve cells in the anterior horns of the spinal cord. Early diagnosis was essential, and depended on lumbar puncture, the cerebro-spinal fluid showing a polymorphonuclear increase. The administration of convalescent serum offered the only real hope of cure, and Evans insists that this should be begun in the preparalytic stage. The serum of convalescent cases injected within six months or one year of the attack ensured the presence of antibodies. The serum need not be grouped. An intrathecal injection of 20 c.cm. should be given on successive days. Intrathecal injection was preferable to intra-

venous administration, because lumbar puncture alone did good by relieving the pressure. If paralysis had occurred the same treatment should be given, but the results were not so good. Stock vaccines were not advised because certain protein serums, when injected into monkeys, had so disturbed the meninges and choroid plexus by their reaction that the amount of virus necessary to produce symptoms of invasion was greatly reduced. When paralysis occurred orthopaedic treatment was two-fold: the prevention of tiring stimuli and the prevention of deformity. Early diagnosis and efficient treatment were the only means to produce improved economic and end results.

624 Epidemic Polyneuritis

J. W. G. TER BRAAK (*Nederl. Tijd. v. Geneesk.*, May 2nd, 1931, p. 2329) records ten cases of polyneuritis in women, aged from 18 to 44, nine of whom were seen in the course of three months at the Wilhelmina Hospital, Amsterdam. In each case the polyneuritis showed a predilection for definite distal groups of muscles and a remarkable symmetry. Objective sensory disturbances were absent. A striking feature was the absence of the tendo Achillis reflexes with retention of the knee-jerks. In nine instances it was found that the women while in the early stage of pregnancy had taken an abortifacient, probably related to apiol, ten to twenty days before onset of their symptoms.

Surgery

625 The Tonsils and Disease

RUBY L. CUNNINGHAM (*Arch. Int. Med.*, April, 1931, p. 513) compares the tonsillar histories of 12,530 white women students from 15 to 34 years of age entering California University during the last ten years. In one-third tonsillectomy had been performed, in one-third the tonsils were normal, and the remaining one-third had diseased tonsils. The incidence of measles, mumps, varicella, pertussis, scarlatina, diphtheria, pneumonia, pleurisy, chronic colds, rheumatism, chorea, and operations for appendicitis, mastoiditis, cervical glands, and upon the nose, was found to differ very little in those with normal from those with pathological tonsils, while in those in whom these structures had been removed the incidence of all illnesses and operations was higher than in those with either normal or pathological tonsils. From the amount of illness occurring before and after tonsillectomy it would appear that tonsillectomy did not materially lessen the susceptibility to most infections; while the age at which the operations were performed did not influence the total incidence of most diseases, early removal seemed to have a slightly favourable influence on the incidence of scarlatina and, to a less extent, on that of diphtheria. A review of the literature revealed that opinions as to the indications for, and value of, tonsillectomy varied widely, there being an increasing tendency to question its prophylactic value against infectious disease, and as a curative measure for such systematic diseases as rheumatism, chorea, and carditis. Neither the literature nor the results of the present study furnish conclusive proof that any causal relationship exists between the condition of the tonsils and otitis media.

626 Traumatic Ulnar Neuritis

E. S. GURDJIAN (*Journ. Amer. Med. Assoc.*, March 21st, 1931, p. 944) points out that the ulnar nerve, owing to its subcutaneous position in the epicondylar groove of the humerus, is apt to be injured through changes either within itself or in the surrounding tissues. He records the case of a young man whose arms had been strapped to the table in the usual manner for an operation. Soon after the anaesthetic reaction a peculiar numbness was felt in the little and ring fingers of the right hand. This numbness in the ulnar distribution of the hand persisted for ten months together, being associated with a progressive weakening of the grip. Traumatic ulnar neuritis was diagnosed, and ulnar transposition was performed, with subsequent recovery. Gurdjian suggests that during the administration of the anaesthetic and the period of excitement the inner aspect of the right elbow and walls of the epicondylar groove were bruised, followed by scar tissue formation. With the narrowing of the ulnar canal the nerve became chronically irritated through compression and adhesions. Early recognition of such lesions is important; if function does not return after a period of waiting, ulnar transposition should be performed, and also neurolysis if necessary.

627 Linitis Plastica

F. KRAUSS (*Zentralbl. f. Chir.*, April 25th, 1931, p. 1060), who reports an illustrative case, states that opinions are still divided as to the character and origin of this condition, which received its name from Brinton in 1857, and is also known as gastric cirrhosis, benign pyloric hypertrophy, and fibromatosis ventriculi. Krauss's patient was a man, aged 30, whose symptoms were gastric pain, vomiting, a tender swelling in the epigastric region, and loss of weight. The correct diagnosis was not made until the operation, when the pyloric region was found to be infiltrated and of the consistency of cartilage. The Reichel-Polya resection was performed and recovery was uneventful, but there was recurrence three months later. Krauss agrees with French writers in classifying linitis plastica among the malignant new growths in view of the short history, rapid fall in weight, and its clinically malignant character and recurrence.

628 Primary Osteomyelitis of the Fibula

L. RADICE (*Il Morgagni*, April 12th, 1931, p. 787), who records three illustrative cases in two boys, aged 18 and 15, and a girl, aged 15, respectively, states that isolated osteomyelitis of the fibula is a rare affection which is found in only 3 per cent. of all cases of osteomyelitis. It is most frequently met with in adolescence, the age of the patients rarely exceeding the second decade. Both sexes are equally affected. Trauma, especially directly applied, is an important factor, as in the other localizations of osteomyelitis. Fatigue may also be a predisposing cause. Osteomyelitis of the fibula may be the primary manifestation of an infective process or the secondary localization of a pre-existing infection, especially typhoid fever, scarlet fever, or pneumonia. The organisms most frequently isolated from the foci of osteomyelitis are *Staphylococcus aureus* and *albus* and the streptococcus. Sometimes, as in Valentini's case, both organisms are found. As a rule the infective process starts in the lower extremity of the bone, corresponding with the juxta-epiphyseal region. The inflammation rapidly spreads therefrom in one direction to the epiphysis, and in the other to the diaphysis, giving rise to necrosis of the shaft. Treatment consists in incision of the periosteal abscess, removal of one or more sequestra being undertaken later if necessary.

629 Undescended Testis

A. GOETSCH (*Amer. Journ. Surg.*, April, 1931, p. 63) reviews thirty-two cases of undescended testis in which operations were performed. It is estimated that this abnormality occurs roughly 5 times in 1,000, and may be either unilateral or bilateral. Right-sided arrest is more common than left-sided, probably due to the fact that the left testis usually descends earlier than the right. The operation should be undertaken before puberty; owing to the fact that a congenital hernial sac is nearly always found in association with a true undescended testis, the danger of incarceration and strangulation of the hernia and torsion of the testis are liable to occur. A testis resting in the inguinal canal, or near the external ring, and exposed to trauma, irritation, and pressure, may tend to malignant degeneration. Hydrocele and nervous disorders, such as stigmata of degeneration, enuresis, chorea, and epilepsy, are frequently associated with cryptorchidism. The ideal age for operation is given as 2 years, since, with normal anatomical and physiological conditions established, normal development may ensue. An inguinal hernial incision is made, exposing the inguinal canal. The vaginal pouch is located and freed, the sac is incised high

up, and the testis exposed. The vaginal process of peritoneum is divided below the internal ring and above the testis. The neck is freed from the cord and its structures, and is then tied high up; the remainder of the peritoneum is freed from the cord. When ample mobility has been gained, a pouch is prepared in the scrotum by blunt digital dissection, and the testis is placed in this cavity. The inguinal region and also the entrance to the scrotum are then closed. In the 32 cases under review bilateral cryptorchidism occurred in 6 per cent. of cases. The inguinal position was met four times as frequently as the intra-abdominal; herniotomy was performed in 91 per cent. of cases. It was found that replacement in the scrotal cavity had a helpful influence on the size and consistency of the testis, and in post-puberty cases neurotic manifestations were relieved.

630 Abolition of Drainage in Purulent Peritonitis

F. MANCHINI (*Arch. Ital. di Chir.*, April, 1931, p. 549), who records 18 successful cases in patients aged from 13 to 47, states that the peritoneum possesses a considerable power of self-defence which can be increased in the presence of bacterial toxins and by artificial methods. Drainage of the whole abdominal cavity is impossible. Tubular and capillary drainage only affects limited zones, and is often the cause of severe disturbance, abdominal drainage being of value only in certain cases. Both experimental researches and clinical observations have shown that such drainage can be omitted not only in acute appendicitis, as is generally agreed, but also in purulent peritonitis, especially when due to appendicitis; in the absence of certain contraindications, such as old age, when the natural powers of defence are weak; and in cases when the operation has not been undertaken until late in the disease. An essential condition for the abolition of drainage is the removal of the original cause of the peritonitis. Complete closure of the abdomen is justified even in the presence of pus owing to the increase of the specific resistance of the peritoneum produced by the bacterial toxins, especially those of *B. coli*.

Therapeutics

631 Digitalis Therapy in Children

LUCY P. SUTTON and J. WYCKOFF (*Amer. Journ. Dis. Child.*, April, 1931, p. 801) describe a study of 22 children receiving 25 courses of digitalis. All were confined to their beds with rheumatic heart disease, and there were varying degrees of congestive failure without auricular fibrillation. The preparation of digitalis used was the powdered leaf in tablet form supplied by the Heart Committee of the New York Tuberculosis and Health Association. These tablets are labelled in cat units, a cat unit being the amount of the drug per kilogram of cat calculated as just sufficient to kill when injected slowly into the vein. Each cat unit was contained in 0.1 gram, or 1½ grains. The total dose was calculated on the formula 0.015 grain per pound of body weight; one-half was given immediately and at six-hour intervals further doses of one-fourth, one-eighth, and one-eighth. The criteria used to judge the appearance of the effect of digitalis were one or more of the following: definite lowering of the heart rate by 20 beats per minute or more; lessening of the dyspnoea and orthopnoea; loss of weight; diminishing oedema; diuresis; decrease in size of the liver; loss of cough; cessation of vomiting; subjective feeling of improvement; changes in the P-R interval of the electrocardiogram; and change in contour of the T-wave in the electrocardiogram. The authors found that the average dose necessary to produce the effect of digitalis was 0.15 cat unit per pound of body weight. All the patients showed some improvement in the signs of heart failure when fully digitalized. It was possible to produce the effect of digitalis without giving rise to toxic symptoms in the majority. A case of active rheumatic carditis that proved fatal reacted to digitalis three times during the course of the infection.

632 Treatment of Tuberculous Haemoptysis

G. CAUSSADE and A. TARDIEU (*Rev. de Méd.*, April, 1931, p. 301) believe that tuberculous haemoptyses are always due to lesions in vessels of variable size; the old theory that the causative factor is pulmonary congestion must be discarded. On this hypothesis the authors divide haemoptyses into slight, abundant, and repeated. At the onset of haemoptysis absolute rest is imperative, and the diet should be restricted to small quantities of warm liquids. Cold drinks, the sucking of ice, and the cold applications formerly prescribed are harmful. For its sedative and indirect action on the heart and circulation morphine should be given in fractional doses of 1/4 to 1/2 cg., two or three times in the twenty-four hours. Such treatment may suffice in slight cases, but as these may later become severe, additional measures are advisable. Vaso-dilator drugs, by indirectly lessening the small circulation, are useful; of these amyl nitrite is the most rapid and powerful, and trinitrine is also of value. Severe haemoptysis may be treated by compression (artificial pneumothorax), by vaso-dilators, and by coagulants. Amyl nitrite is again the most preferable vaso-dilator medicament in these cases. The action and value of emetine is discussed. Of coagulants, extract of the posterior pituitary lobe and anthema (rabbit serum) are incontestably valuable. Other efficacious coagulants are calcium chloride and pectine. In those rare cases which are rapidly fatal, though the haemorrhage may be slight, coagulants are useless, and injections of camphorated ether, strychnine, adrenaline, or ephedrine should be given. The treatment of haemoptyses occurring in the course of collapse-therapy is described.

633 Treatment of High Blood Pressure with Pancreatic Extract

Frey and Kraut claim to have discovered a hormone (padutin), produced in the pancreas, which has the effect of lowering the arterial pressure and widening the capillaries. W. SCHARPFF (*Deut. med. Woch.*, April 17th, 1931, p. 675) now reports his experiences in a clinical trial of this substance on patients previously treated by diet and other therapeutic measures. It was administered intramuscularly in doses of 1/2 to 2 c.cm. daily. In cases of essential hypertension, with or without evidence of renal damage, the effect was favourable, both in reducing the blood pressure and in combating the headache, tinnitus, and other symptoms. Scharpff thinks it more effective than any other remedy at present available. Upon the fixed blood pressure of the malignant renal sclerosis cases, however, it was without effect. Probably in this group the high pressure is compensatory, and necessary for the maintenance of renal and circulatory function.

634 Sulphur in Tabetic Optic Atrophy

J. FRIED (*Journ. Nerv. and Ment. Dis.*, May, 1931, p. 487) reports the result of treating with a sulphur and bismuth compound twelve patients who were suffering from tabetic optic atrophy. The visual acuity was substantially diminished in all cases, and there was a considerable amount of colour-blindness; the ophthalmoscope revealed a well-defined papery-white, bluish-white, or grey-white papilla without change of the retinal vessels or other parts of the fundus. The general clinical diagnosis in eleven cases was locomotor ataxia, and taboparesis in the remaining ones. Intramuscular injections were given, first of 1 c.cm. of bismuth salicylate, which was subsequently increased to 1.5. With this was then associated the bismuth and sulphur salicylate compound recommended by Winkler. Five or six hours after the sulphur injections the retina showed temporary hyperaemia, and the formerly well-defined optic disc became hazy at the margins. The papilla changed from white to reddish, and this is attributed by the author to an intensive hyperaemia of the capillaries brought about by the sulphur injections. The visual acuity was at first impaired by the injections, but this regression was followed by a marked improvement which persisted. As regards the visual field, the injections gave rise to progressive improvement, and the colour vision returned to the normal. Slight pyrexial attacks

began about six or eight hours after the injections, and lasted from five to ten hours, the temperature rising to between 99° and 105°. If the reaction was slight, the subsequent improvement was found to be little. Of the twelve cases treated with sulphur injections, six showed marked improvement; four patients were only a little benefited, one was unchanged, and one became worse.

635 Treatment of Peptic Ulcer with Mucin

S. J. FOGELSON (*Journ. Amer. Med. Assoc.*, February 28th, 1931, p. 673) submits a preliminary report of twelve patients with the typical history and *x*-ray appearance of peptic ulcer. The duration of symptoms varied from two to seven years; pain was very prominent. The usual alkali regime and bland diet had resulted in only temporary relief. The general procedure was to give each patient one ounce of powdered mucin from hogs' stomachs in ice-cream, malted milk, or similar foods, three times a day with meals, and 20 to 40 grains in tablet form hourly during the day. Further treatment consisted only of the usual bland convalescent ulcer diet. The subjective symptoms disappeared in every case within three days, and did not recur during the subsequent period of observation of two to five months. No ill effects resulted from these large doses of mucin. The author suggests that the relief obtained was due to two factors. The mucin coated the ulcer and protected it against the proteolytic action of the gastric secretion. As the result of its high combining power with free acid, it united with enough hydrochloric acid to neutralize the corrosive action of the gastric juice and also to prolong the rate of dialysis of pepsin through the protective mucin layer thus supplied.

Disease in Childhood

636 Acute Glomerular Nephritis in Childhood

HARRIET G. GUILD (*Bull. Johns Hopkins Hosp.*, April, 1931, p. 193) considers that the prognosis in acute glomerular nephritis of children is good; as a general rule, the younger the child is the better is the prospect of complete recovery. A study is presented of thirty-four cases examined one to twelve years after an attack of acute glomerular nephritis; eighteen were seen less than five years and sixteen more than that period after the nephritis; all but six were aged 7 years or less at the time of the attack. Albuminuria was present in nine cases, of which three had only the orthostatic type. In one patient who came to necropsy four years after an attack of nephritis the kidneys showed no trace of the previous disease. All the patients, excepting one with advanced rheumatic heart disease, made good recoveries. The author remarks that, even when the urine fails to clear entirely, albuminuria may persist for years without impairment of the health or kidney function. Children who have had acute nephritis stand subsequent infections without greater liability to complicating renal diseases than those who have never had this disease. Though many of the patients are now entirely normal despite neglect of infective foci, it is held to be important to attend to such foci promptly in all cases. It is also useful to follow up albuminuric patients to determine the ultimate prognosis in each; the present examinations show that some may yet clear up entirely, and that those who fail to do so will, nevertheless, remain in good health for many years.

637 Sequels of Sinusitis in Children

Sinusitis, according to S. D. WIMMER (*Arch. of Oto-Laryngol.*, February, 1931, p. 159), may be a cause in children of nephrosis, which is a pathological condition of the kidney in which the morbid changes are confined to the tubules. The cells become granular, and are finally shed, being succeeded by a lower type. Pure tubular nephrosis is, however, a rare condition, and secondary glomerular and interstitial changes are common. Clinically, nephrosis is characterized by oedema, scanty urine, albuminuria, and hyaline and granular casts. The blood pressure and phthalein output are both normal. There is non-retention of the non-protein nitrogen, and the presence of blood cells or pus cells in the urine is uncommon. The etiological factor in these cases is believed to be a toxin from a focus of infection, and Marriott is quoted as having stated that infection of the paranasal sinuses was present in practically all cases of nephrosis under his observation. The *Staphylococcus haemolyticus* is the most commonly found infecting organism. Nephrosis, by lowering resistance, frequently leads to sinusitis, which in turn aggravates the condition, thus creating a vicious circle. Diagnosis is difficult in children, and radiograms are often equivocal, but one fairly constant sign is enlargement of the posterior group of cervical lymph glands, which, in the absence of infection of the ear or scalp, always points to sinus involvement. Treatment may be either conservative or radical. In all cases diseased tonsils and adenoids are removed, and 80 per cent. of cases are cured by this means alone. Other cases are treated by nasal irrigation, puncture, and irrigation of the antra, and in the more resisitant cases by an intranasal antrostomy. Vaccines have proved of limited value. Four illustrative cases, the patients' ages ranging from 3½ to 7 years, are described; the renal condition resolved after successful treatment of infected antra.

638 Tonsillar Predisposition to Infectious Diseases

A. D. KAISER (*Amer. Journ. Dis. Child.*, March, 1931, p. 568) presents a controlled study of 4,400 children over a period of ten years. Half this number of children had had their tonsils and adenoids removed at ages varying from 4 to 7 years. The control group, a like number of the same ages, had had the same indications for operation, but for various reasons, usually parental objections, were not subjected to operation. Special studies on rheumatic children provided additional data. Removal of tonsils and adenoids influenced favourably the following infections: colds in the head, sore throats, cervical adenitis, otitis media, rheumatic heart disease and the first attack of rheumatic fever, diphtheria, scarlet fever, nephritis, and dental infections. The following infections were almost uninfluenced: chorea and recurrent attacks of rheumatic fever, measles, laryngitis, tuberculosis, and malnutrition. Bronchitis, pneumonia, and sinusitis were influenced unfavourably.

Obstetrics and Gynaecology

639 The Aschheim-Zondek Test for Pregnancy

G. H. ETTINGER, G. L. M. SMITH, and E. W. MCHENRY (*Canadian Med. Assoc. Journ.*, April, 1931, p. 491) record the results of their investigations in which urine from 112 cases of suspected pregnancy and from 25 controls was submitted to the diagnostic Aschheim-Zondek biological test. Their work confirms that of other investigators as to the reliability of the test, and the findings in every case agreed with the subsequent clinical diagnosis. The procedure was to inject 2 c.cm. of urine, preferably from a first morning specimen, in six equal doses during three days, into five mice between three and five weeks old, and weighing from 6 to 8 grams. One mouse is killed and examined on the fourth day; if its ovaries have matured, the other four are killed, and the result is known three days from the beginning of the test. Should the first mouse give negative findings, the remainder are left until the next day, because of the possibility of rupture of the follicles occurring later than the fourth day. A control mouse weighing as much as the heaviest injected mouse is killed and examined with each test group. When speed in diagnosis is needed identical results have been secured with rabbits by injecting 5 c.cm. of urine in one dose into a 12 to 14 weeks old rabbit which is examined 24 hours later, the test taking from 24 to 30 hours for its completion as against 72 to 100 hours with mice. The authors add that in 4,000 observations by other observers the test gave correct results in over 98 per cent.

640 Induction of Labour by Membrane Rupture

A. F. GUTTMACHER and R. G. DOUGLAS (*Amer. Journ. Obstet. and Gynecol.*, April, 1931, p. 485) report a critical study of the induction of labour by artificial rupture of the membranes, and classify their 120 cases in three groups. In the first group each patient received 1 ounce of castor oil and 10 grains of quinine, the quinine being repeated subsequently at intervals of one and two hours. A hot soapsuds enema at 115° F. was given after two hours, and four hours after administration of the castor oil the patient was taken to the delivery room and the membranes were ruptured, an ampoule of pituitrin being then applied intranasally according to the method of Hofbauer; the pituitrin was repeated each hour until strong pains began. In the second group of patients the procedure was as in the first group, except that no pituitrin was given. In the third group the membranes were ruptured without preliminary treatment of any kind. The authors conclude that labour at or near term can be successfully induced by artificial rupture of the membranes, and that the efficiency of this method is undoubtedly increased by the preliminary administration of castor oil and quinine. They consider this procedure superior to the use of the bag or bougie. They found that the average length of labour was decreased, and the incidence of puerperal infection was diminished; there was no increased infant mortality.

641 Resection of the Pelvic Sympathetic

Since resection of the pelvic sympathetic has been recognized as having a place in gynaecological therapy, G. COTTE (*Gynécol. et Obstét.*, March, 1931, p. 233), who first practised it in 1924, records the results of his experience and describes in detail the actual operation. Indications for this intervention are neuralgic phenomena of pelvic origin, dysmenorrhoea, vesical neuralgia, vaginism, rectal tenesmus, and dyspareunia, all indicating hypersensitiveness of the hypogastric plexus. The incision used by Cotte is the transverse suprapubic one of 5 to 6 cm. (Pfannenstiel). Detachable dilators are then inserted and the appendix is removed as a routine. In certain cases small cysts which have escaped clinical examination are discovered and excised. Cotte prefers, whenever possible, to preserve the ovaries and resect the sympathetic in preference to more radical operations. The pelvic sympathetic is most easily accessible on the body of the fifth lumbar vertebra, a little above the promontory. The triangle made by the two iliac vessels is next located. In this triangle to the left of the mid-line the inferior mesenteric arteries are seen. The peritoneum is then incised vertically in the mid-line. The fibro-cellular covering of the subjacent vertebra becomes apparent. In this tissue the pelvic sympathetic lies. When the nerve is exposed it is important to ascertain that the whole nerve is lifted, and not one of its constituent bundles; 2 to 4 cm. are then resected. In cases of neuralgia associated with uterine cancer and infiltration of the parametrium 6 to 8 cm. may be removed. It is not necessary to ligature the cut ends. The peritoneum is then sutured and the abdominal wall is closed. Cotte adds that in the six years since he first performed this operation no untoward results in the genital organs or bladder have followed.

642 Histamine and Utero-placental Apoplexy

R. BOMPIANI and G. ADDESSI (*Ann. Ostet. e Ginecol.*, February, 1931, p. 131) refer to the experimental work of Hofbauer and Geiling, who gave intravenous or intracardiac injections of histamine to pregnant guinea-pigs and cats. They noted tetanus of the uterus and engorgement of the local blood vessels, and in guinea-pigs a partial or complete detachment of the placenta with retroplacental clot formation; microscopically, haemorrhages were discovered in the endometrium and myometrium, and thrombi in the decidual vessels. The liver and kidneys showed in cats necrotic and degenerative changes resembling those seen in eclampsia. In similar experiments in guinea-pigs the authors failed to induce detachment of the placenta, but similar changes occurred in the liver, kidneys, and the interior of the placenta. That histamine may be concerned in the causation of premature detachment of the normally situated placenta is suggested alike by these experiments, and its detection by Hussy and others in foetal and maternal blood, and in the placenta in cases of pregnancy, toxicoses, and utero-placental apoplexy.

643 Early Endometrial Invasion of the Broad Ligament

B. DAWSON (*Med. Journ. Australia*, March 21st, 1931, p. 350) recalls a case of endometrial invasion of the wall of the sigmoid colon, which he published in 1921, and now reports another case of endometrial invasion which involved the broad ligament. Commenting on this condition, he remarks that of the four main views held in regard to the etiology of such endometrial invasion, his case appears to have been one of primary invasion of the ovary, with a secondary infiltration through an adhesion to the cellular tissue of the broad ligament. In view of the marked migratory powers of the endometrial cells in this condition, it does not seem unlikely that such an extension occurred through the peritoneum to the underlying cellular tissue. The endometrial growth affecting the ovary was quite superficial and had not penetrated the stroma. Dawson suggests that the ovary, having received upon its surface menstrual blood conveying a fragment of endometrial epithelium, may have become prolapsed and adherent to the posterior surface of the broad ligament in the position in which it was found at the operation. The endometrial graft survived and invaded the broad ligament, creating there a typically hard and fibrous infiltration containing scattered endometrial tubules. The absence of cyst formation is attributed to the early stage of the invasion when discovered, and also to the fact that the patient was approaching the menopause. The author concludes that his early examples of endometriosis tend to support Sampson's transplantation theory of their origin, rather than the hypothesis of embryonic "rests," metaplasia of the peritoneal epithelium, and growths arising from corpora lutea.

644 Treatment of Gonorrhoea

G. GERGELY (*Zentralbl. f. Gynäk.*, March 7th, 1931, p. 595) reports good results in treatment of chronic and subacute gonorrhoea by injecting living gonococci, as recommended by Loeser. From 100 to 2,000 million cocci were injected intracutaneously at intervals of eight to ten days into as wide an area of skin as possible; the general reactions were mild, and a rise of temperature rarely followed. Each injection induced a diminution of the discharge, and adnexal pain and inflammation were found to disappear more quickly than with any other form of treatment. The injections were combined with douching with a 5 per cent. sodium carbonate solution, plugging of the cervix with a 10 per cent. solution of protargol in glycerin, the insertion into the urethra of protargol bougies, and with hot-air therapy and diathermy.

Pathology

645 Etiology of Urticaria

K. E. HARRIS (*Quart. Journ. Med.*, April, 1931, p. 347) records observations upon the vascular reactions in the skin in 16 cases of spontaneous urticaria, and compares them with the response of normal skin to injury. The method of eruption of the wheals and observations upon transference of serum from affected patients are recorded in an attempt to show that the exciting factor of the attack acts upon the skin cells, and through them produces secondary effects upon the blood vessels. Cases may be divided into two groups according to their mode of spreading: (1) those which, quite small at first, spread rapidly, reaching their maximum quickly and lasting only a short time; and (2) those in which the wheals are large and extend and attain their full size slowly, persisting for a relatively long time. The former resemble the

typical triple response of normal skin to injury, and are probably due to the rapid liberation of " H-substance " resulting from a quickly acting poison, while the latter have a skin reaction which is due to the slow liberation of this " H-substance " in response to a slowly acting poison or internal agent. The relation of urticaria factitia to the spontaneous form is deducible from the fact that those suffering from the latter developed urticaria factitia on stroking; this passed off with the subsidence of spontaneous urticaria. The eruption in spontaneous urticaria resembles the triple response of skin to injury due to the release of histamine or " H-substance " from the skin cells; transference tests suggest that the condition is due to a toxic body circulating in the blood.

646 The Blood in Untreated Cancer

Since cancer cells receive their nourishment from and give off their waste products to the blood, the blood of cancer patients might be expected to differ from the normal. GLADYS E. WOODWARD, JANETTA W. SCHOONOVER, EDITH G. FRY, E. G. TORRANCE, and E. MCDONALD (*Journ. Lab. and Clin. Med.*, April, 1931, p. 704) state that the blood must be considered as a physico-chemical system in which the hydrogen-ion concentration is a factor of fundamental importance. A series of *p*H determinations were made on 26 patients who had received no form of treatment, and were reasonably free from complications; such factors, the authors add, are important, since irradiation, medication, or respiratory affections may influence the *p*H figures. The average reaction in these cases was found to be 7.44, or considerably more alkaline than normal. Alkalinity is said to be more pronounced in internal cancers; the average of 8 superficial cases was 7.38, while that of 18 internal ones was 7.47. The degree of alkalinity is closely related to the prognosis; not only does an alkaline *p*H indicate an unfavourable prognosis, but, in this series, a greater degree of alkalinity denoted a shorter term of life.

647 Lithium Chloride in the Isolation of Salmonella Organisms

J. D. A. GRAY (*Journ. Path. and Bact.*, May, 1931, p. 335) finds that, while many organisms are very susceptible to the action of lithium chloride, the staphylococci and several members of the Salmonella group show a considerable resistance to it. This observation forms the basis of a method of isolating Salmonella bacilli which is regarded as being as good as, and usually better than, the brilliant green enrichment method. In practice the suspension to be examined is planted in streaks on to three plates containing 15 c.cm. of MacConkey's medium to which 2, 2.5, and 3 c.cm. of a 10 per cent. aqueous solution of lithium chloride have been added respectively. The plates are incubated for forty-eight hours. Alternatively the suspension may be inoculated into three tubes of 10 c.cm. peptone water, *p*H 7.6, to which 1, 2, and 3 c.cm. of the lithium chloride solution have been added. The cultures are plated on to MacConkey's medium after incubation for twenty-four and forty-eight hours. One advantage of the method is that both the MacConkey plates and the peptone water containing the lithium chloride may be kept ready for use.

648 The Pathology of Nephrosis

In a comprehensive study of nephrosis, L. LEITER (*Medicine*, May, 1931, p. 135) deals fully with its pathogenesis. The nephrotic syndrome is not clinically and pathologically directly related to glomerulo-nephritis, although commonly associated with it. In its primary uncomplicated form this syndrome is known in nephrosis, and is a rare disease. Numerous theories have been advanced as to its pathogenesis, and these are briefly discussed. The specific renal changes and the absence of changes in other organs suggest a primary renal lesion; before this can be accepted it must be definitely established that these changes occur very early in the disease. That nephrosis is a general metabolic disorder with secondary involvement of the kidneys is not supported by sufficient evidence. There are no true metabolic diseases which tend to spontaneous recovery as does nephrosis; moreover, this hypothesis does not explain the frequent association of nephrosis with glomerulo-nephritis and amyloid disease of the kidney. Despite the marked increase in the blood lipoids, particularly cholesterol and its esters, there is no evidence supporting the inclusion of nephrosis among the primary general disturbances of lipoid metabolism. The albuminuria may be due to a primary renal lesion which may alter the renal capillary permeability to plasma proteins, or it may be secondary to qualitative changes in these proteins. The oedema is probably closely related to the reduction in plasma proteins, whether due to renal permeability or to faulty production.

649 The Etiology of Trachoma

H. A. REIMANN and A. PILLAT (*Journ. Exper. Med.*, May, 1931, p. 687) have endeavoured to confirm Noguchi's findings of *Bact. granulosis* in patients suffering from trachoma. Five cases were examined in Chinese subjects, cultures being taken on to suitable media. From one patient a single colony of this organism was recovered; the remaining cases proved negative. Cultures of this organism were inoculated into the scarified conjunctiva of *M. sinensis* monkeys, and in two out of five monkeys scarring and contraction of the tarsal cartilages were produced, together with a few conjunctival follicles. The identity of these lesions with those of human trachoma could not be determined. From a consideration of the clinical and experimental evidence it is suggested that trachoma is in most instances a double infection. There may be firstly a superficial conjunctival infection associated with Prowazek-Halberstädter inclusion or Lindner's initial bodies, and, secondly, a deep infection of the subepithelial layers probably caused by the *granulosis* bacillus. In the same issue P. K. OLITSKY, R. E. KNUTTI, and J. R. TYLER (p. 753) describe the bacteriological examination of seven cases of trachoma in New York. Of these, four yielded cultures of *Bact. granulosis*. Since experimental inoculation of monkeys with cultures of *Bact. granulosis* usually gives rise to a conjunctivitis of the type seen in the comparatively early stages of trachoma in man, the authors formed the opinion that the florid type of trachoma might possibly be due to secondary infection. Monkeys of the *rhesus* type already showing granular conjunctivitis resulting from inoculation of human trachomatous tissues or cultures of *Bact. granulosis* were secondarily infected by subconjunctival inoculation of mixed suspensions of staphylococci, streptococci, diphtheroids, and other bacilli, mixed with an equal amount of testicular extract to increase their pathogenic action. Infection promptly resulted, with the development of a condition closely resembling that of florid human trachoma. The effect of the secondary infection appears to be to convert a follicular conjunctivitis into a more severe and destructive lesion of the hyperaemic granulo-papillary type.

650 The Erythrocyte in Anaemia

R. L. HADEN (*Amer. Journ. Med. Sci.*, May, 1931, p. 597) emphasizes the importance in anaemia of measuring the erythrocyte; such measurement may be expressed in terms of diameter or volume. By estimating the former, the degree of anisocytosis may be estimated. The volume is a much more sensitive indicator of the variations in the size of the erythrocytes, and these variations are best expressed in terms of volume index. A 13 per cent. increase in the diameter causes a 44 per cent. increase in the volume. The cell mass is most accurately determined by the use of the haematocrit, employing an isotonic anti-coagulant which does not change the volume of the cells. Pernicious anaemia always shows an increase in the cell volume; anaemia due to a known specific cause usually shows a decrease in, or a normal, volume. An increased cell volume with achlorhydria is almost absolutely diagnostic of pernicious anaemia. The prognosis in an anaemia of known cause becomes progressively more unfavourable as the cell volume decreases. Iron therapy is probably of value only when the cells are below the point of haemoglobin saturation, as shown by a decreased saturation index.

#334